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PHYSICAL EDUCATION
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By STANLEY WILSON

VAULTING AND AGILITY

Second Edition

A NEW APPROACH TO ATHLETICS

PHYSICAL EDUCATION FOR INDIA

by

DWARKANATH S. BORKER
A.B.A.P.T., M.R.I.H.P.H.(ENG.)

Foreword by

MAJOR-GENERAL THE RIGHT HON.
SIR FREDERICK SYKES

Illustrated

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WOKING

TO
SUVRATADEVI RAMNARAYAN RUIA

In affectionate remembrance of the
many kindnesses and invaluable
help in shaping my career

Preface

THE idea of this book is to provide the interested public with simple information and at the same time sound knowledge of the subject.

Athletic coaches and physical training staffs will, it is hoped, find it a useful handbook. I have tried my best to cover all the points and have given as broad a view of physical education as it is possible to do in a limited space.

I am greatly indebted to Major-General the Rt. Hon. Sir Frederick Sykes for writing the foreword, and my thanks are due to all those who have helped me to complete the work.

I must say "Diolch" to my Welsh friend, Rees Price, and to Miss B. Lloyd-Williams (Ling Physical Education Association) for correcting the MS., and "Danke" to Herr Heinz P. Pringshiem for all the assistance given.

D. S. B.

RUTLAND HALL

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Foreword

By SIR FREDERICK SYKES

I HAVE much pleasure in writing a foreword for Mr. Borker's little book on Physical Education. Physical culture has long been a science in India, as anyone will realize who has seen the striking feats of "Malkhamb" performed by Indian athletes, or the wrestling matches which are popular all over the Deccan. My old friend the Raja of Aundh has produced a scheme, partly based on the ancient Yoga exercises, which he has made compulsory in his State schools, with very marked results. But India has yet to learn of the immense studies made in the West in this direction since the Great War. All Europe now recognizes that training, physical and mental, are complementary and must be organized by the State. *Mens sana in corpore sano* is the motto of the day, and we can no longer leave physical training, as in the past, to individual choice, or even to private bodies.

I hope the day is not far distant when in every Indian school there is an organized inspection of the children's health, and a scheme of physical exercises, carefully adapted to individual needs. In the meantime, Mr. Borker's book will, I hope, help to arouse a general interest in the subject, and induce its readers to press for definite steps to be taken in this direction. The State cannot legislate in advance of public opinion, and no scheme can ultimately succeed unless it is actively supported by the community.

50 EGERTON GARDENS

LONDON, S.W.3

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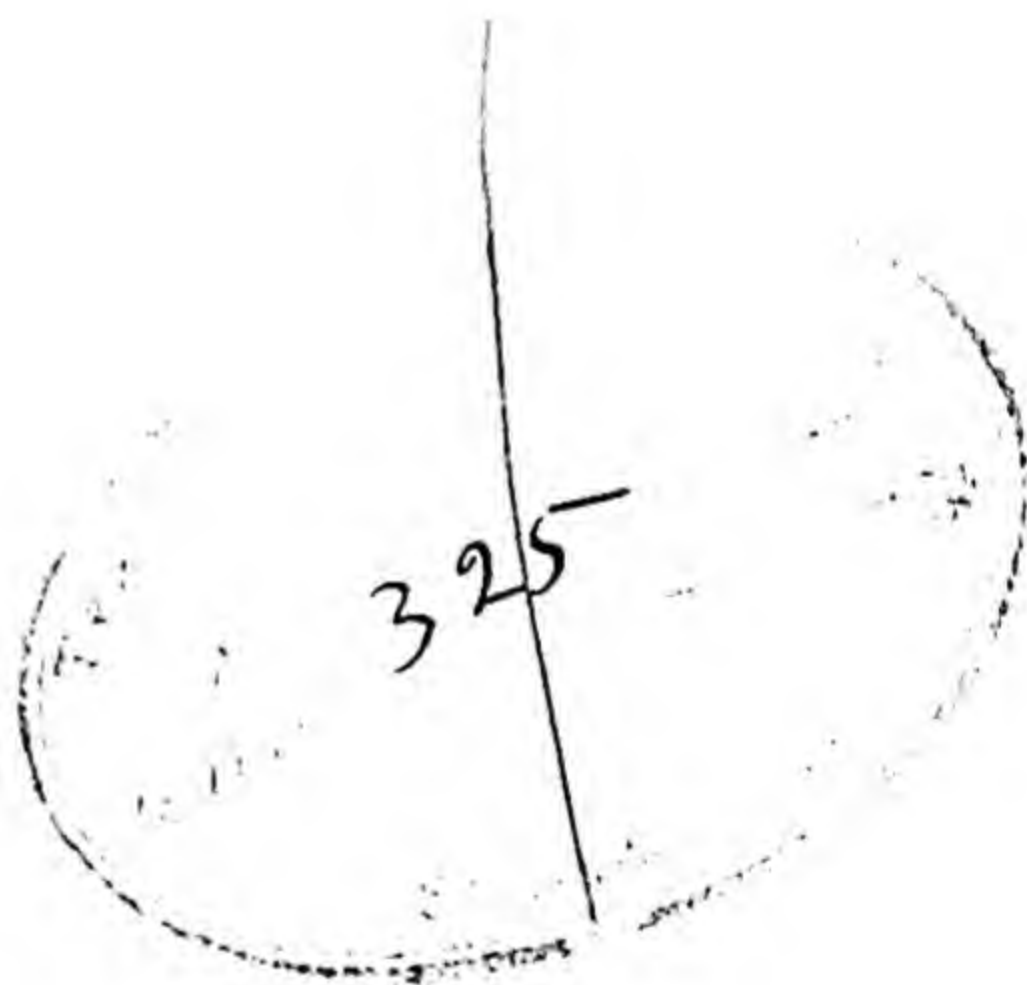
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Chapter I

HISTORY OF PHYSICAL EDUCATION

Ancient Greece

THE Greeks were the first people to develop physical education in the modern sense. They took regular exercise in gymnastics in their own way and they entered the different festivals, where they used to take part in athletics—wrestling, jumping, javelin throwing, and other events. The most famous of these festivals was held at Olympia—a western area of Peloponnesus—every four years from 776 B.C. to A.D. 383, where over fifty thousand people were accommodated in the stadium. This historical festival was closed by the Christian Emperor Theodosius. The influence of these festivals was so great that every Greek considered it his duty to prepare himself for them in order to win the honours. The awards ranged from a crown of wild olives to costly prizes, and the accompanying hero-worship gave the winners such encouragement that they started visiting different cities for the sake of prizes, and the common love of physical education was changed into professionalism in the festivals.

Germany

The Greek idea of physical education was to prepare every citizen for the life of a soldier. Then came the era of the Romans who encouraged moral education, and so the interest in physical education waned until the end of the eighteenth century, when the leading men of the Mediterranean countries earnestly appealed, and emphasized the need for physical education. The practical development

was made early in the nineteenth century by that famous German and pioneer of physical education, Johann Fredrich Guts Muths, who started the work as a teacher at Philanthropinum (Ger. Brotherhood), Schnepfenthal, a small village near Eisenact in central Germany, where he wrote his famous book *Gymnastik für die Jugend* ("Gymnastics for the Youth") in 1793. He added to it his own new exercises in addition to what he learnt from ancient Greece—climbing, marching, and lifting.

He also invented gymnastic apparatus, the best known of which is that used for climbing. He also mentioned that gymnastic exercises should be based on the anatomical system. His enthusiasm was so great that physical education began to take root in German hearts and his famous book was translated into all the leading languages of Europe. Then came the period of Frederick Ludwig Jahn, who, observing the poor standard of health in Germany caused by the Napoleonic wars, started the campaign for rebuilding Germany. In 1811 he inaugurated his scheme in the neighbourhood of Berlin called Turnplatz (Gymnastic Field), where he got an excellent response from all kinds of people. He followed in the footsteps of Guts Muths and introduced new exercises on parallel and horizontal bars. To bring new life into his campaign he invented distinctive dress and badges for the Turners (Gymnastic Club). In 1813 Jahn and his gymnastic followers joined as volunteers against Napoleon in the War of Deliverance. He returned to Berlin in 1816 and wrote a book, *Die Deutsche Turnkunst* ("German Art of Gymnastics"). Following the publication of the book, Turner gymnastics became a big factor in the character of the German people.

Now Germany has made physical education a compulsory subject for schools and colleges, and every university has its institute in physical education, where an undergraduate has to undergo strict military training for two years. The

Government encourages physical education in every way, and since the National-Socialists came into power Germany has improved still further under the able care of Herr von Tschammer und Osten, the Reich sports leader.

Denmark

The influence of Guts Muths's book, *Gymnastik für die Jugend*, was so great in Denmark that Franz Nachtegall directed his mind towards physical education. In 1799 he opened an outdoor gymnasium in Copenhagen. This work was much appreciated by King Frederik, and he advised that the exercises introduced by Nachtegall should be carried out by the military gymnastic instructors. It was King Frederik who gave a fillip to physical education in Denmark. He ordered that the Military Gymnastic Institute should be built. The work was finished in a short time, and in 1804 young Nachtegall, twenty-seven years old, was appointed the first principal of the Institute. This institute, under the patronage of the King, gave a very good account of itself, and civilians were also taught to qualify to be instructors in schools and other institutions. In 1828 an act was passed that gymnastics must be in the curriculum of schools, and Nachtegall's book, *Laerebog i Gymnastik* ("Teaching Book of Gymnastics"), was approved for the use of schools and other institutions. In 1839 King Frederik VI died, and in him Denmark lost a keen patron of physical education. Ling, the Swedish poet, was carrying on his own work in Sweden and his work on gymnastics was added to the Danish system. The revised system was published by the Commission appointed by the Government in 1889 in a book entitled *Haandbog i Gymnastik* ("Handbook of Gymnastics"). In 1900 all the games played in Great Britain were introduced. At present physical education is compulsory in all schools and colleges, and it has been given the same value as the

other academic subjects. Gymnasia, swimming pools, and playing fields are seen in every corner of Denmark, and the prestige of this important subject is kept up to date by the Chief Inspector of Gymnastics on the Danish Board of Education, Mr. K. A. Knusden.

Sweden

On November 15, 1766, the founder of Modern Gymnastics, idol of the physical educational world, was born in Smaaland, a province of South Sweden. He was Pehr Henrik Ling, son of a clergyman. Ling studied Nachteggall's gymnastics and was connected with the University of Lund. It was through his efforts that an Institute of Physical Education was established at Stockholm, with which he was closely connected until his death on May 3, 1839. Ling's masterpiece on gymnastics was *Gymnastikens Almannagrunder* ("Foundation of German Gymnastics"). Unfortunately he was unable to complete it owing to his untimely death. It was his son Hjalmar Ling who finished the book. Ling outlined a regular system of exercises and stressed the point that all the exercises should aim at building a well-balanced body and all-round development. He invented much apparatus for the gymnasium and all of it is still in use. The most popular are wall-bars and the box-horse. His son Hjalmar gave to these exercises and movements a physiological and anatomical turn. His work, based on this principle, called *Rörelselära* ("Movements"), was published in 1866. The present system of education is based on the Ling system, with slight changes for women and children which were added by Elli Björkstén.

Great Britain

This country is rightly known as the home of Games and Sports, whose history takes us back to the time of the

Anglo-Saxons. The countries on the Continent developed gymnastics earlier, which did not come to Britain until 1800 when Guts Muths's book, *Gymnastics for the Youth*, was translated into English. Later the public schools and universities had informal games and sports as a regular feature and outdoor life was encouraged. The exercises which were carried out in schools were based on military principles, which were changed early in the present century by giving effect to the Danish and Swedish system through the official syllabus issued by the Board of Education.

Since the Great War, from 1918 until the present time, Britain has led the whole world in her voluntary system of physical education. The teaching is based on a broader sense of hygiene, and the social aspects have been covered particularly. In 1907 the School Medical Service was inaugurated by Act of Parliament, and the need for qualified teachers on modern lines was stressed. The Carnegie College, Leeds; Loughborough College, Leicestershire; and the Jordanhill Training Centre, Glasgow, supply the necessary qualified men teachers.¹ Their curriculum covers every subject of physical education, including Bio-Chemistry, Physiology, Anatomy, Modern Gymnastics, Games, Athletics, Swimming, Playing Field Movement and some Psychology. The Board of Education gives grants in aid of all the gymnasias, swimming pools, recreation grounds, and even to voluntary organizations. The National Playing Fields Association, incorporated by Royal Charter, looks after the playgrounds and recreation grounds and where playgrounds are not available "play streets" have been opened. Since January 1937 the increased work of the National Fitness Council has ensured Britain her rightful place in physical education and the "Keep Fit" movement is attaining its ideal.

¹ Women teachers are trained at the Anstey, Bedford, Bergman-Osterberg, Chelsea and Dunfermline Colleges, recognized by the Ling Physical Education Association, and also at the Liverpool, Queen Alexandra House and Nonington Colleges.

Chapter II

THEORY OF PHYSICAL EDUCATION¹

THE main idea of physical education is to endeavour to perfect health, to obtain a harmonious development of muscles and a training of the mind—which leads to improved mental development. To obtain these things the following subjects have been included in physical education: physical training, gymnastics, athletics, swimming and games coupled with a study of physiology and anatomy.

Gymnastics.—The main classification of exercises was first introduced by Ling and has been revised by many famous teachers, latest of whom is Professor Lindhard of Copenhagen University. They were originally:

1. Standing and walking.
2. Developing exercises.
3. Balance exercises.
4. Agility exercises.

The aim of these classifications is to develop correct posture, regular working of joints and muscles, control of the neuro-muscular system and to mould the body into a well-balanced unit. To get these results and to form a table of exercises we must have the knowledge of anatomy and physiology which form the fundamental basis of modern physical training. I shall give here some of the exercises for all-round development of the body, based on physiological and anatomical principles, which may serve as examples.

¹ The author has tried to give a broad view of the theory, as it is not possible to deal with the subject fully owing to limited space.

1. HEAD EXERCISES

Result.—Proper carriage of the head and the upper part of the trunk.

Type.—Head pressing backwards and rolling, etc.

2. TRUNK EXERCISES

Result.—Strengthening the dorsal and abdominal regions, giving mobility to hip joints and flexibility to the spine.

Type.—Trunk bending, forwards and downwards.

3. ARM EXERCISES

Result.—Correcting and suppling effect for the shoulders and thorax and the dorsal spine.

Type.—Arm stretchings, bendings, flings, etc.

4. LEG EXERCISES

Result.—A good type of carriage and free movement develops leg and abdominal muscles and gives gracefulness.

Type.—Heel raisings and knee bendings. (Balance exercises should not be static.)

5. ABDOMINAL EXERCISES

Result.—To strengthen the abdominal hip and muscles and to develop the correct carriage of the lower part of the body.

Type.—Knee and leg raisings in lying position.

6. LATERAL EXERCISES

Result.—To increase the mobility of the spine in its sagittal plane and to develop the abdominal rotator muscles.

Type.—Trunk bending and turning sideways.

7. DORSAL EXERCISES

Result.—These are:

- (1) suppling, mainly for shoulder girdle and thorax.

- (2) developmental, mainly developing all dorsal muscle groups.

Type.—(1) Chest pressing downwards.

- (2) Front lying. Trunk raising backwards with arm raising upwards.

8. HEAVING EXERCISES

Result.—The development of:

(a) the muscles attached to the shoulder.

(b) the muscles attaching shoulder to trunk (scapulae to trunk).

Type.—Generally taken on gymnastic apparatus which includes heaving on the beam, climbing on ropes, etc.

9. BALANCE EXERCISES

Result.—Development of the neuro-muscular system.

Type.—Balance walking on the beam.

10. WALKING EXERCISES

Result.—Alertness, sense of rhythm, natural poise.

Type.—Walking in short (on the toes) and long steps.

11. AGILITY EXERCISES

Result.—Give speed, skill and co-ordination of neuro-muscular system, demand courage, strength and agility.

Type.—Hand spring and head spring.

12. LEAPING OR VAULTING EXERCISES

Result.—They give spring, elasticity, courage, and cultivate energy and strength.

Type.—Standing jump and face vault.

13. CORRECTIVE EXERCISES

These exercises are given as may be required by the bad

posture which is to be corrected. The faults may be due to bad habits, unhealthy occupations or to certain diseases.

TERMINOLOGICAL TABLE

1. Hd. Press.
2. Tr. Bend fd.
3. Am. Bend Stretch.
4. (Bk. Ly.) Kn. and Lg. Raise.
5. Tr. Bend.
6. Span.
7. (Hg.) Am. Bend and Stretch.
8. Wk. on beam.
- 9, 10, 11, 12. The teacher should demonstrate and then should give the command—Begin!

COMMAND

1. Head backward—Press! Upward—Stretch! by numbers—One!—Two!
2. Trunk forward—Bend! Trunk upward—Stretch! . . .
3. Arms—Bend! Arms sideways—Stretch! . . .
4. Lying on your back—Down! Knees raising and lowering, in time—Begin!
5. Trunk to the left—Bend! Later to the left and right in time—Begin!
6. With arms sideways, on your back—Down! Chest—Raise!—Lower!—Raise!—Lower!
7. Hanging from the beam with over grasp. Arms—Bend! Arms—Stretch!
8. Balance walk forward on the beam slowly—Begin!

The commands for other exercises are similar, but the

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teacher should explain and demonstrate before giving the command.

NOTE.—In order to help the gymnastic teacher to write the table of exercises, an accurate terminology was introduced by Branting in 1840, when he was the head of the Swedish Central Institute. In terminology the abbreviations are used to show the position, movement, and time.

PHYSICAL DEVELOPMENT

The gymnastic instructor must know what development has been made by his students, and for this he must have some measurements of standard attained. These measurements achieved not only help the students to see how they are progressing, but also they help the instructor to know the effects of his teaching. In recent years there has been much research to establish an index of physical development and different methods are used.

TEST 1

Standing Height.—The student should be told to stand with his heels together, looking straight forward with his eyes level. His back should not be curved nor chest thrown forward, which is a normal unstrained standing form. The back must be flattened. The head must touch the measuring standard. The scale pointer should be brought down until it touches the head.

TEST 2

Weight.—A spring balance should be used and the student should be weighed naked. At the time of comparing results the instructor should see that all the weights are taken at the same time as the date shown in the table.

<i>Date</i>	<i>Time</i>	<i>Weight</i>
10.7.36	9.30 a.m.	135 lb.
10.6.37	9.30 a.m.	142 lb.

TEST 3

Chest.—The student should be measured with a flexible steel tape. The measurement should be taken at the

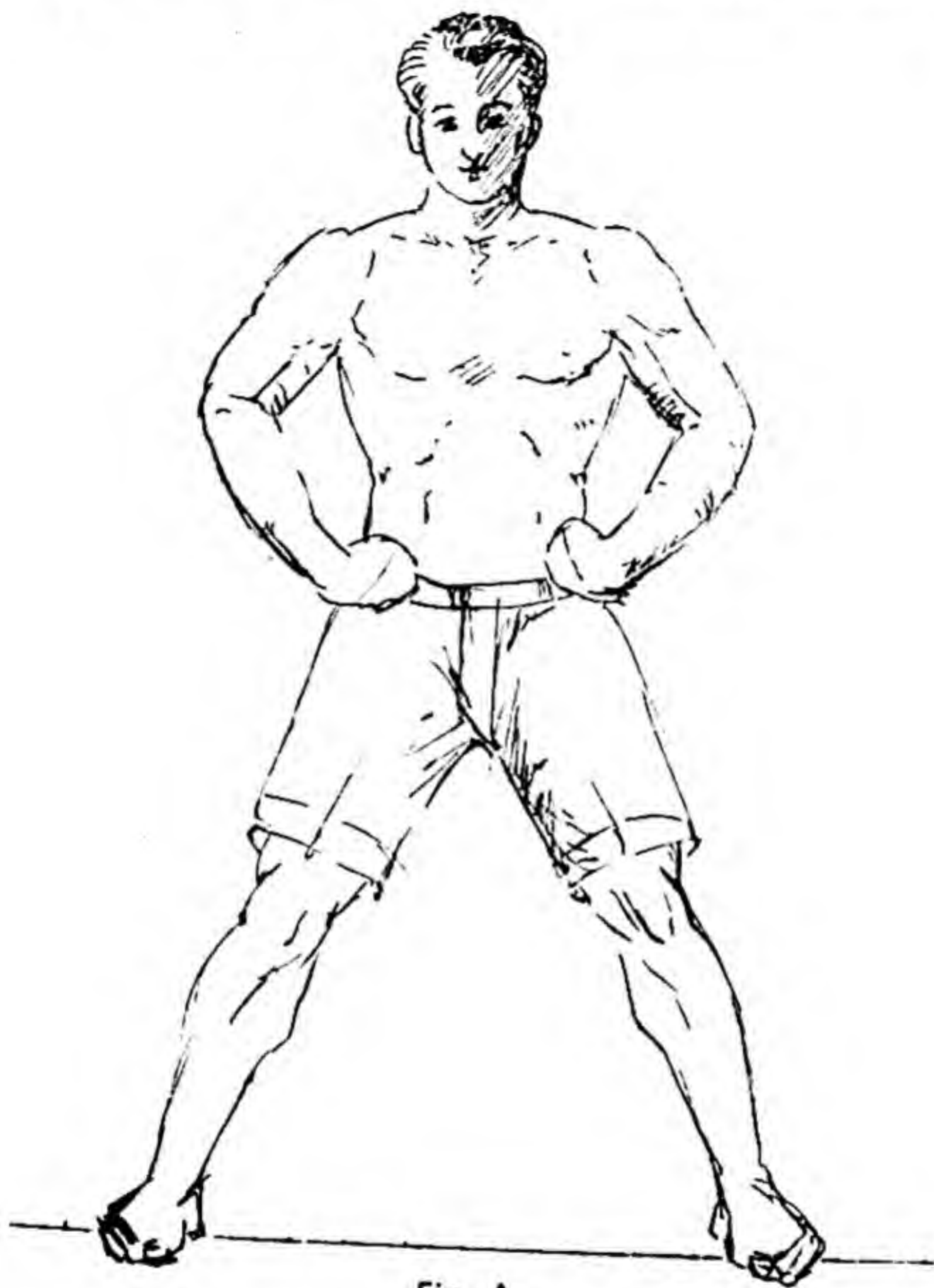


Fig. A.

level of the nipples and the tape held at the same level at the back. Two measurements should be taken for reading: (1) normal chest; (2) expanded chest.

TEST 4

Adductor.—The student should be ~~gold~~ to stand in his

natural position and to stretch his legs as far apart as possible (i.e. directly sideways) with hands on hips. The scale should be drawn before. See Fig. A.

TEST 5

Vital Capacity.—This is measured by the volume of air breathed out to its maximum after the maximum amount of air has been taken into the lungs. It is measured by a “spirometer.”

TEST 6

Hamstrings Test.—The student should be told to bend his trunk downwards in the “toes touching” position. The distance from the finger tips should be measured to see if it is minus or plus.

There are other forms of apparatus which are used for measuring other tests and Herr K. H. Knusden has recently added one more device for measuring the angle between the backbone and arm stretched upwards.

TEACHING

The teacher should have his own individuality while teaching and his commands should be as distinct as possible so that the furthest student in the corner can hear him. He should demonstrate the exercise before giving a command and should make sure that every student has understood it. The standing position of the teacher should be in front of the class either to the right or left corner so that each student can see his instructions as shown in Fig. B.

Faults should be corrected in a general way and not in particular to each student. The explanation should be of a positive nature, and it is better to use words instead of numbers while the movement is carried out. This not

only gives rhythm to the movement but also ensures that any correction is made automatically. The exercises should be of interest to everyone and give maximum benefit with minimum effort.

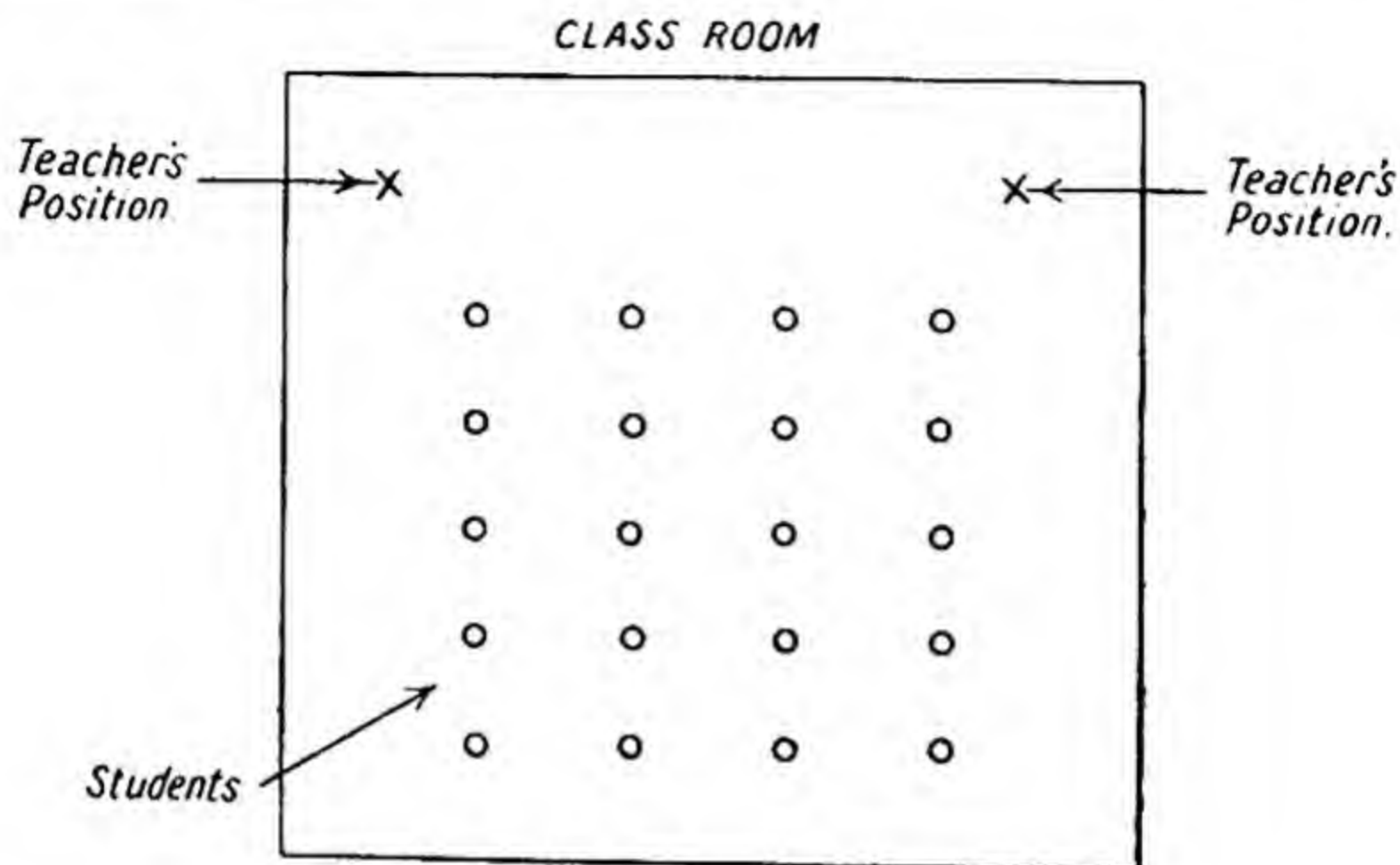


Fig. B.

Public Demonstrations.—These are given as propaganda to influence the public in favour of physical education. There are many methods of propaganda, such as:

- (1) Lectures.
- (2) Motion pictures.
- (3) The Press.
- (4) Personal demonstration.

Of these the last has more far-reaching effects than the others as it appeals to the emotions. To derive the fullest benefit and enjoyment from it the demonstration should be planned as follows:

THE PROGRAMME

This should not last longer than two hours with an

interval of 15 minutes to give a rest to the performers. The first and the last items should be a spectacular march so that the audience is immediately attracted. Apart from that the choice of items must be based on the public taste.

THE SITE

This should be a park or easily accessible hall in the centre of the city.

ADVERTISEMENT

(a) Posters and handbills. These should be circulated all round the city and displayed in important places like railway stations, schools, colleges, etc.

(b) Press. Representatives of the Press should be invited to see the rehearsals and to give the performance a good "write-up."

(c) Cinemas. Free slides might be exhibited in important theatres.

FINANCE

An account must be kept of Expenditure and Income, e.g.

<i>Income</i>	<i>Amount</i>	<i>Expenditure</i>	<i>Amount</i>
Sale of Programmes		Rent	
Advertisements		Travelling	
Entrance Fees		(Demonstrators)	
Rent from Stalls		Dresses	
(if any)		Printing	
		(Invitations and Programmes)	
		Conveyance and Postage	
		(Organizer and other	
		Officials)	
		Cartage	
		(Musical Instruments, etc.)	

PRELIMINARY DUTIES OF ORGANIZER

He must make sure—

(1) That he has the co-operation of all his assistants and that their duties have been explained to them.

(2) That the display is rehearsed twice. (The organizer should attend and should meet all the performers.)

(3) That the invitations have been sent to the influential people and important men in the Public Services.

(4) That the audience have fixed seats and stewards to direct them.

(5) That if complimentary tickets are issued the recipients should be given seats in the front row with their respective name cards to avoid confusion.

(6) That refreshments for the performers are available after each item.

(7) That the performers are paid their expenses.

(8) That the acknowledgments and letters of thanks are kept ready to be posted as early as possible.

Chapter III

ATHLETICS

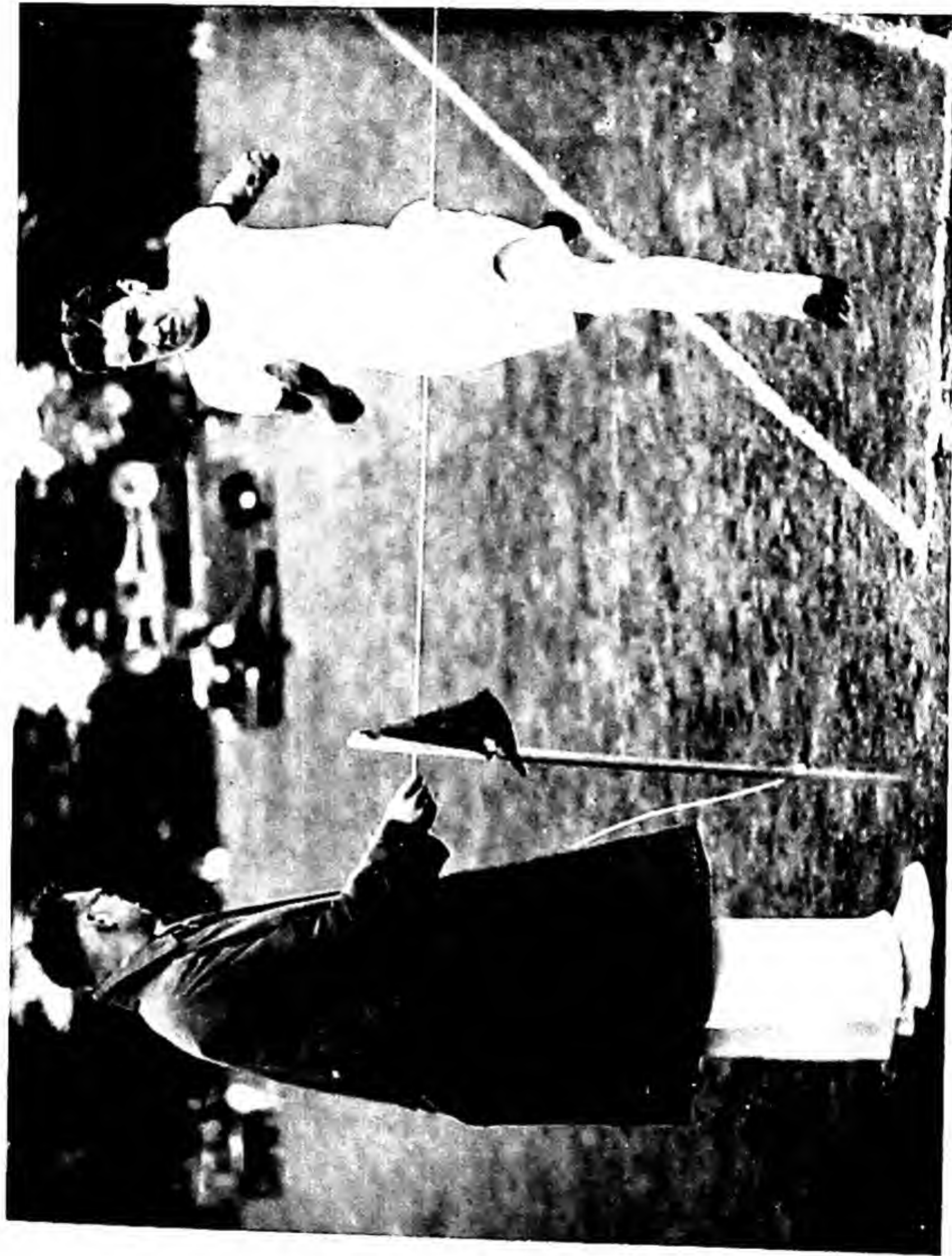
MANY people consider that in Athletics the man who wins is a born athlete, but recent research has proved that by scientific training a man of ordinary physique and medium height can reach the winning tape. The best examples of this fact are H. M. Osborne (U.S.A.) and A. F. H. Newton (G.B.). Osborne's height is 5 ft. 9 in., but he gained the world's record for the high jump by clearing 6 ft. 8 $\frac{1}{4}$ in.—nearly one foot more than his own height. Newton did not begin to run until he was over forty, but he easily made world records, some of which are still unbeaten. As there is a number of different events for which an athlete can train, care should be taken to select the event or events which appeal to him most and for which he is physically fitted.

RUNNING

The main factors which have to be observed are speed, stamina, and judgment of pace.

Speed.—This depends upon the perfect co-ordination of movement of arms, legs, and body. The athlete should try to accustom the different muscles which are used in running to contract and relax, and he should have regular sprinting practice with a perfect style, giving due consideration to the exertion involved. He should also see that no extra energy is used by the other muscles which are not in action. This can only be done by perfect poise and correct balance.

Stamina.—This is the real key to running, as speed depends on stamina. To have good stamina the athlete



A good finish

must be physically fit and should carry out the rules of personal hygiene. Regular running practice is another essential part of developing stamina.

Judgment of Pace.—This is generally used by middle-distance and long-distance runners. A stop-watch should be used to give exact knowledge of the time taken and

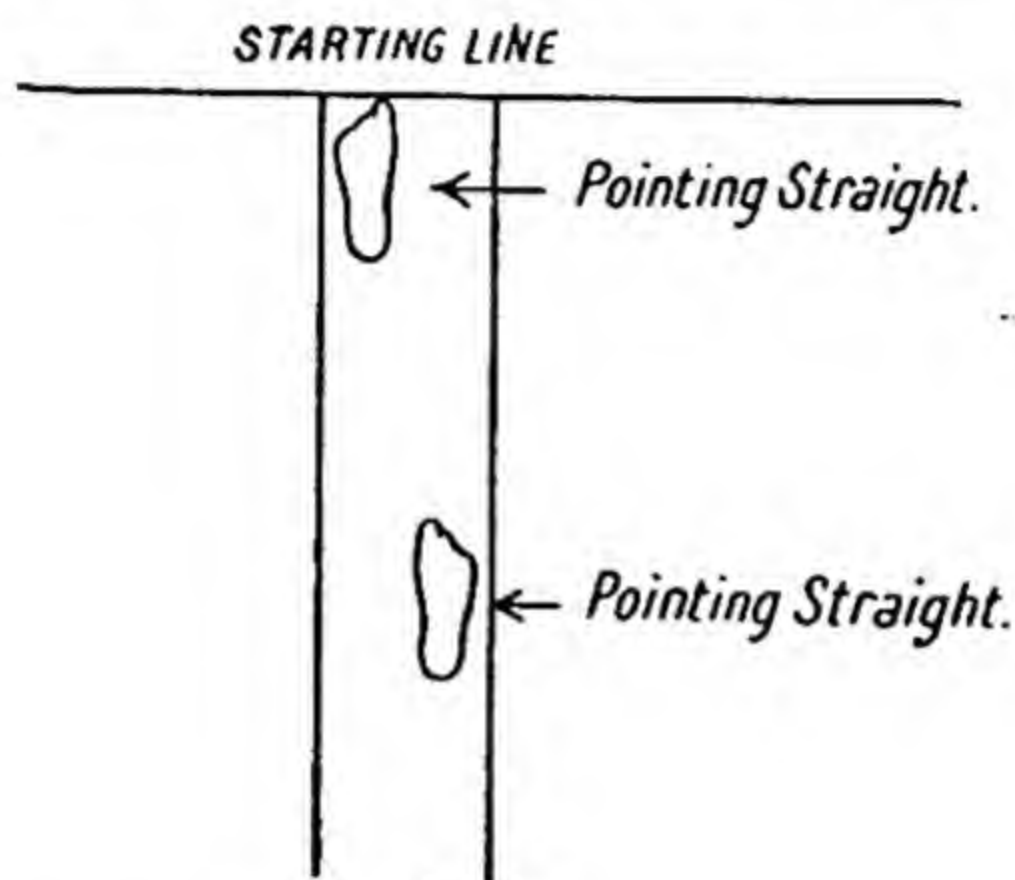


Fig. A

then the runners should adjust their strides by constant observation.

TECHNIQUE

The object of running is to move from one point to another in the least possible time, and to do this we have to concentrate on each part of the body which is used in the movement.

Legs.—When raised the knees must be pointing straight and not sideways. The swing must come from the hips. There must not be an undue amount of kick-up behind.

Ankle.—The development of ankle joints by regular exercise in flexion and extension should be carried out.

Feet.—The footplay must be correct as shown in Fig. A,

toes pointing straight and not sideways or turned out. The foot joint must be supple to help the ball of the foot and toes to get a good push off.

Arms.—The action of the arms must be in time with the leg action. The elbows should be bent at an angle of 90 degrees and the swing must come from the shoulders with hands not coming back further than the hips. This

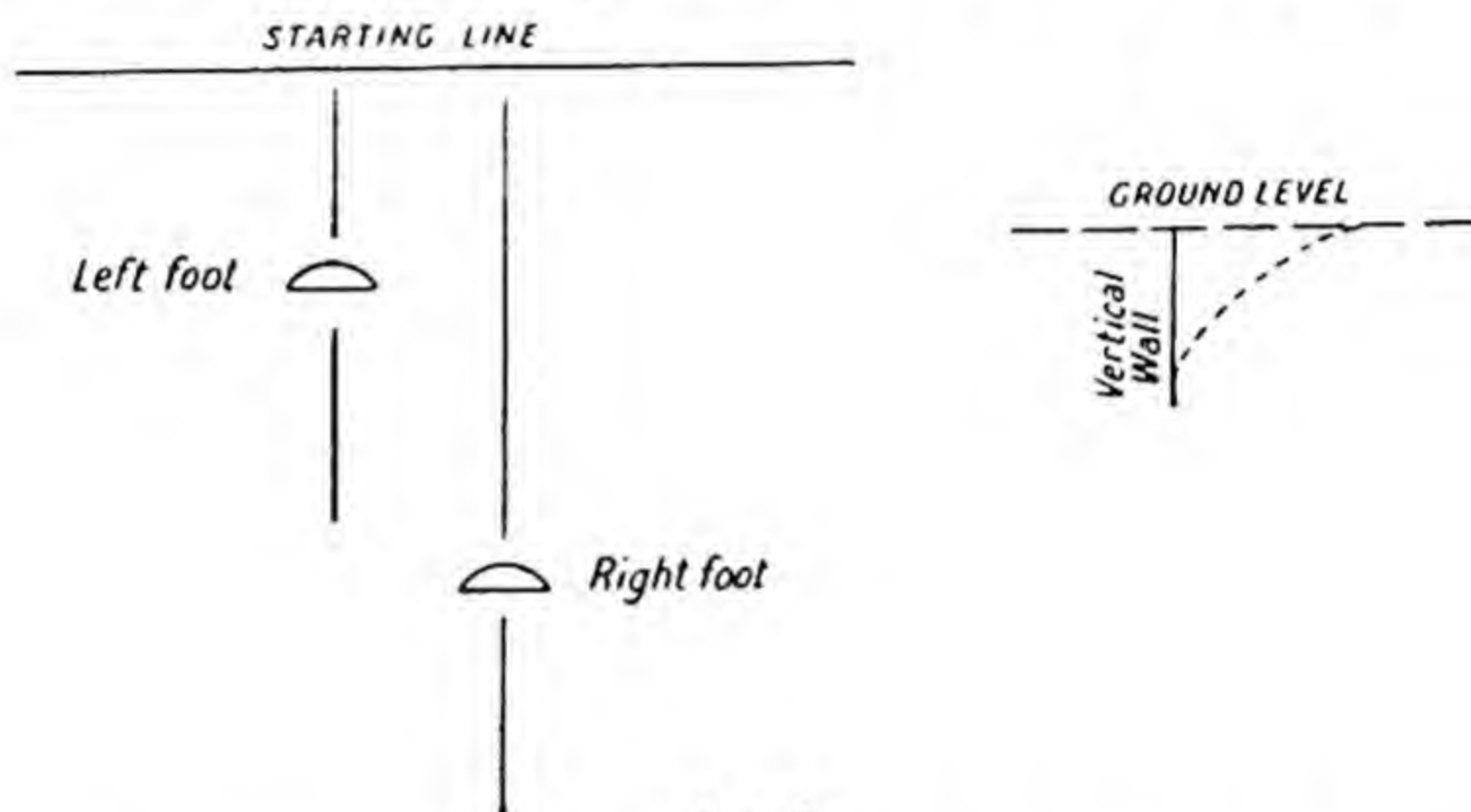


Fig. B

helps the upper part of the body to be loose and relaxed and keeps the chest muscles free from tension.

Head and Neck.—The head must be kept with the level of the eye as it keeps the balance of the body. The neck must be relaxed. Care should be taken not to throw the chin up and the head back. This not only hinders the speed, but also the breathing, and increases exhaustion.

Having learnt the technique of running we will add one more step, that of correct start and finish. The first thing we have to do is to mark the position of the feet and then dig the holes as shown in Fig. B.

These should accommodate comfortably all the spikes of the ball of the foot upright and should be sloping towards the starting line. Place your hands on the starting



A good start and excellent push off from the holes

line with thumbs pointing inwards with arms straight and alert, shoulders relaxed and nearly parallel with the ground. Bend the knee opposite to the leading leg and keep it comfortably on the ground so that the whole movement of starting is carried out with ease and accuracy. After a good start you must take care to ensure that you finish in perfect style. When you come within 15 yards of the finish you must make your "spurt" to reach the tape at full speed. *See Plate 1.*

After passing the tape see that you ease up slowly by taking another 15 yards. This helps the heart to drop more gradually back to normal.

HURDLES

This is the most interesting and thrilling event in athletics. It looks very easy when one thinks of jumping high and clearing the first hurdle without knocking it down. But to clear all the hurdles with perfect rhythm and style is a most difficult task, and can only be learnt by good coaching and by knowing the fundamental principles. The method is divided into five main parts:

1. The start.
2. The take-off.
3. Hurdle clearance.
4. Landing.
5. Strides between the flights.

The Start.—The same as for ordinary running.

The Take-off.—The first hurdle is at a distance of 15 yards from the starting line. Now take some easy strides to measure how many you will require before you reach the take-off mark which is at a distance of between 5 or 6 ft. from the hurdle as shown in Fig. C (it varies according to the athlete).

Flights.—The first and foremost principle in this is to take as little time as possible in the air while crossing the hurdles. With this in view the athlete should shoot off [- - - -] as soon as he reaches the take-off mark (with the leading leg and opposite arm). He must also see that the leading leg is straight but slightly bent at the knee and the body and head is lower so as to reach the

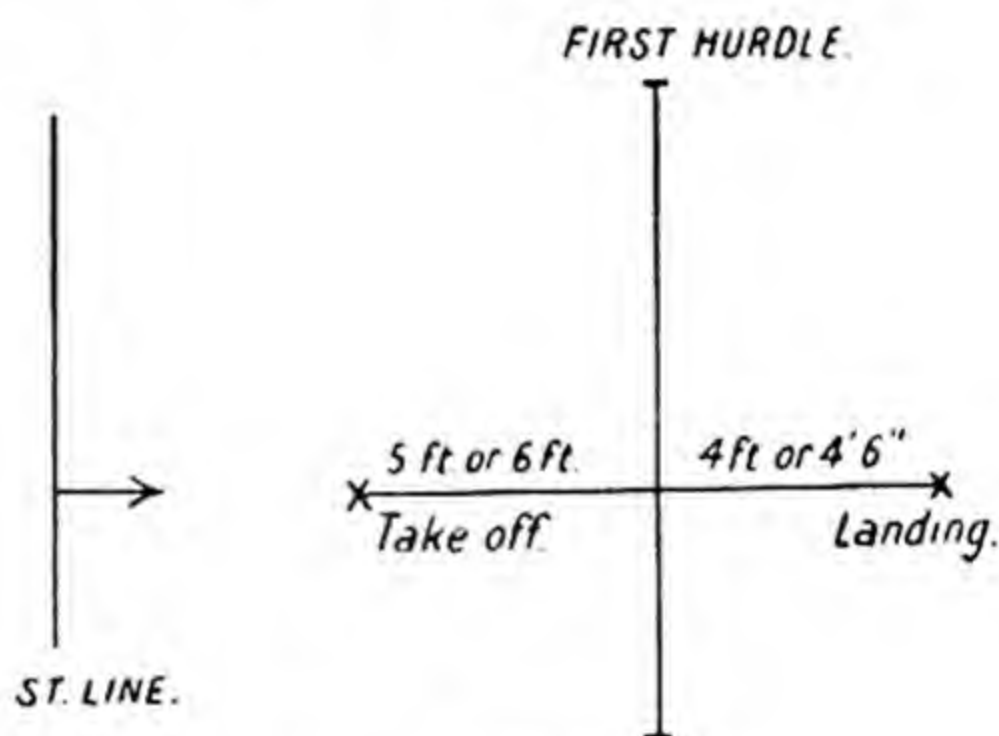
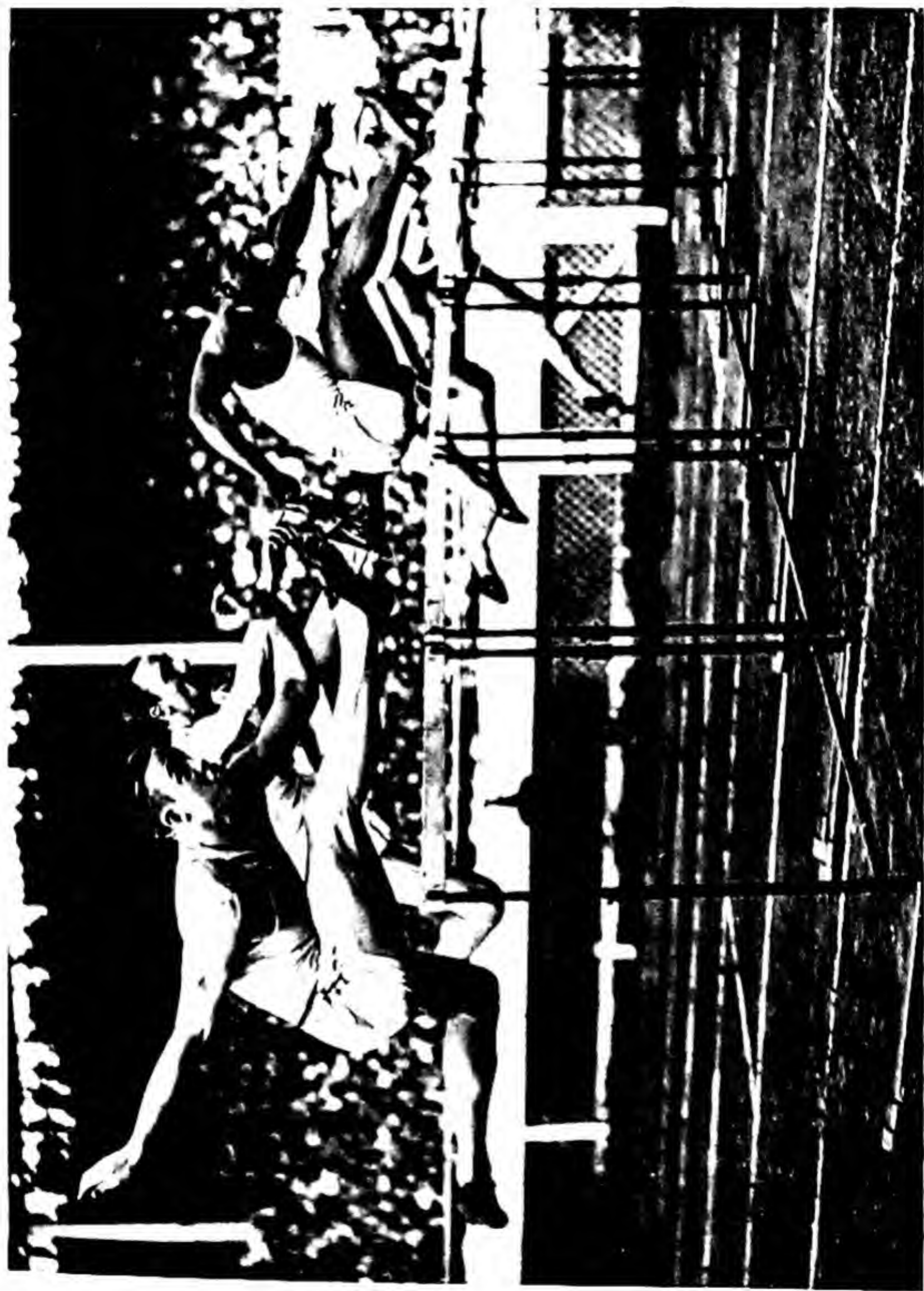


Fig. C

chest to the thigh and the knee almost touching the chin. The idea of this action is to put the weight as far forward as possible so that the leading leg gets down quickly and you reach the next hurdle without loss of time. As soon as the leading foot reaches the ground, bring the rear knee right up to the shoulder and thigh parallel with the hurdle.

Landing.—See that you land on the toes to get a good push off. The landing footprints should not be more than three feet from the hurdle base. The world champions see that their stride from the take-off to the landing is not more than a distance of 10 ft.

Strides between the Flights.—The strides between the flights are three, and to get the correct leg leading again while crossing the second hurdle requires perfect rhythm



Hurdles: Excellent flight over the hurdles with correct rhythm



(a) Long Jump. A good landing with full swing



(b) A hand stand on the Horizontal Bar



(c) A low backhand in Badminton—note the

and perfect action. Any change of step might add to the time and also spoil the rhythm.

LONG JUMP

This jump is the exact opposite of the high jump as we have to gain length as much as possible. It is divided into three main parts.

1. Approach.
2. Take-off.
3. Landing.

1. The approach run should take as little energy as possible. The athlete must not take more than 15 yards start—this will give the sprinting speed necessary to produce a full swing. See that you have a few walking paces till you reach the check line (starting line) which you should mark according to your strides, and from the check mark sprint along as if hurdling, till you strike the take-off board.

2. As soon as you strike the take-off board try to make a good leap and a powerful swing by using the heel ball and the toe. Also relax the legs and give a forcible swing to the arms to get up into the air.

3. Land with hands and feet touching the sand simultaneously. See that you shoot the legs from the hips and that the arms are kept forward to balance the body. The correct landing is shown in Plate 4, (a).

THE HIGH JUMP

This event calls for even more enthusiasm and concentration than the others. It is divided into four stages.

1. Approach.
2. Take-off.
3. Lay-out.
4. Landing.

Approach.—The usual method of approach is to allow yourself a distance of about 40 to 45 ft. You should run with smooth springy strides, increasing your speed in the last six strides. The run-up must be well controlled and there must be no hesitation.

Take-off.—You should run at an angle of 45 degrees to the lath and use the heel and the ball of the foot, rolling the body as soon as your centre of gravity is level with the lath. You should try to bring all the parts of the body to the centre of gravity and should take a swing from the arms in order to give a pull to the free leg towards the lath and jump straight up.

Lay-out.—There are many ways of high jumping:

- (a) Western roll.
- (b) Eastern cut-off.
- (c) Straddle.
- (d) Scissors.
- (e) The neck lay-out scissors.

And the lay-outs are different for each, but in all the styles the hips must be above the lath before the lay-out commences.

Landing.—In the Eastern cut-off the athlete lands in the sand-pit on the take-off leg facing the direction of his approach run. He keeps his arms above his head, his body leaning forward, and his free leg taking a swing.

In the Western roll the athlete lands on his take-off leg with hands facing downwards and the free leg thrown up and back.

In the "straddle" he lands on his free leg with hands and head downwards in the sand-pit with his take-off leg swung up and back.



(a) F. R. Webster: A correct flight preceding a perfect landing



(b) High Jump: Eastern ...

POLE VAULT

This is the most spectacular event which requires a great deal of courage. It can be put into four main stages:

- (1) Approach.
- (2) Take-off.
- (3) Flight.
- (4) Landing.

The Approach.—You should take a long run-up as for the long jump event. The more speed you have the better. You should run with the pole held by both hands which should be from 2 to $2\frac{1}{2}$ ft. apart according to your build.

The Take-off.—As soon as the pole is plunged into the box you should take a swing off the ground with arms raised grasping the pole just above your head.

The Flight.—The take-off should be from the leg opposite to your leading hand and the swing given by the approach run should work simultaneously with the pull of the arms, the legs being drawn upwards towards the chest. You should try to keep as close to the pole as possible, as if you were climbing over the *Mulkhamb* (Sandow's pole).

Landing.—You should land in a vertical position facing the lath—if possible in the centre of the sand-pit.

PUTTING THE SHOT

The weight varies according to the age in schools, but the standard weight for major athletic events is 16 lb. There are three main stages in this event:

- (1) The hold of the shot.
- (2) Correct standing.
- (3) Delivery.

The Hold of the Shot.—You should lift the weight with your "non-putting hand" in order not to tire the other and

should rest it on the shoulder of the putting arm near the neck. When throwing you should lift it with the first three fingers.

Correct Standing.—You should stand at right angles to the direction of the throw, keeping the body well balanced, and you should put the weight of the body on the rear leg by lifting the leading leg towards the line of the throw.

Delivery.—Lift the leading leg and throw the weight of your body on to the rear leg with your shoulder leaning back. Then swing the leading leg forward and backward and give a powerful leg drive from the rear foot, keeping the neck straight and turning the trunk into the vertical axis. At the same time give a flick of the fingers as the weight leaves the hand so as to give more upward rotation while the arm is extended from the bent position as forcibly as possible.

HINTS TO THE COACH

The coach should try to take his student through each step with slow and easy exercises.

(1) He should teach him the correct exercises to develop the muscles which will be used for the event and should teach all the technique and principles.

(2) He should teach him the other aspects of health so that he is "fit."

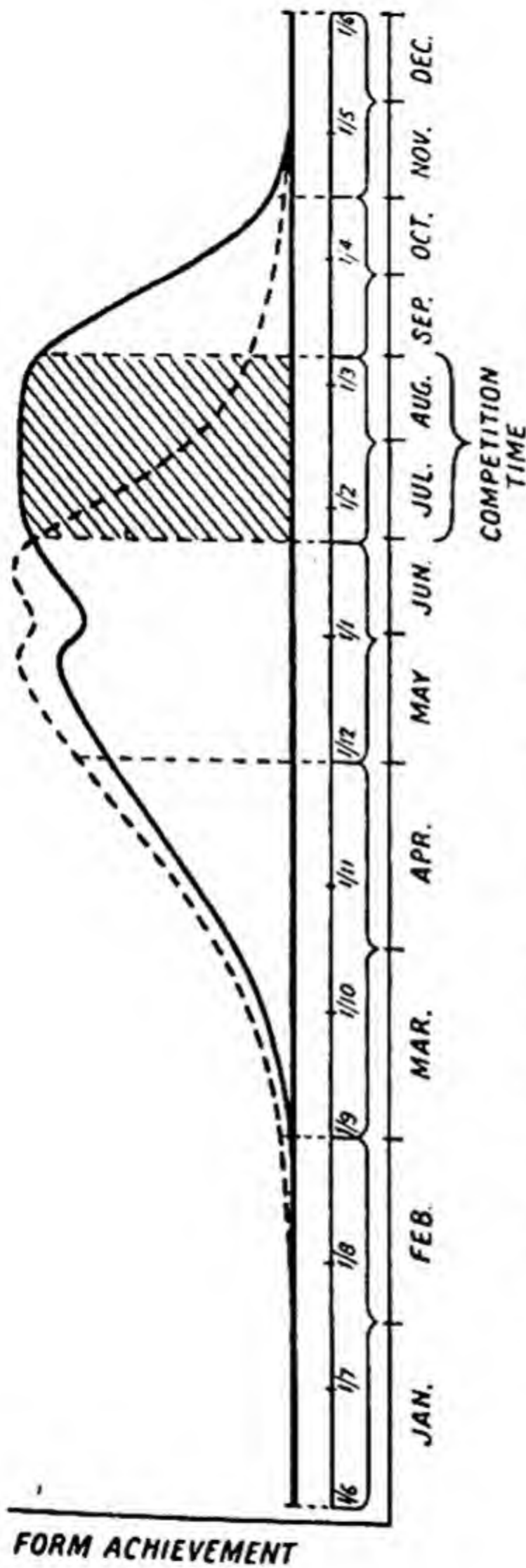
(3) The latest records and new methods employed by world holders should be pointed out through slow-motion pictures and the effects of different actions should be explained.

(4) The rules and regulations of the Amateur Athletic Association should be pointed out in detail.

(5) At the beginning of the training period a time-table must be drawn up allowing time for relaxation and rest.



A perfect throw—note the flick of the fingers



- - - - line showing the form without rest just before the competition time.
- line showing the form with rest just before the competition time.

This graph was shown to the author by Valste, the famous Finnish coach who has attained success by this method.

Fig. D.—Form Time Table (see page 42).

The athlete must also be given a standard card as shown on page 41.

(6) Three weeks before the competition the athlete should relax slightly and the advantages of this should be explained.

(7) The coach should be up to date with all modern methods and should have a complete library and information of all the world athletic achievements.

THE ATHLETIC MEETING

The organizer should have a detailed programme of the work he has to do and the varied duties of the other officials whom he will appoint to make the meeting a success. There are no hard-and-fast rules about the working of the meeting, but as a guide he should observe all the rules of the Amateur Athletic Association, which is the governing body of the department. The preparation should be done on the following lines:

Entries.—Receive the entries a week before in order to sort them and arrange the programme.

Officials.—Appoint the officials and request them to attend the meeting at a scheduled time.

The Officials should be:

- (1) Referee.
- (2) Judges.
- (3) Time-keepers.
- (4) Starters.
- (5) Stewards.
- (6) Chief judge.
- (7) Clerk of the course.
- (8) Announcer.
- (9) Chief recorder.

(10) Competitors' steward.

(11) First-aid officer.

All the officials should have their respective duties clearly explained and should be given different badges.

Groundsman.—He should be told all the rules and measurements in order to mark the track and see that the following equipment is on the ground:

(1) Apparatus for different events.

(2) Bell

(3) Finishing posts.

(4) Whitening and brush.

(5) Rakes for jumps.

(6) Stop-board.

(7) Recording boards.

(8) Step-ladder.

(9) Notice boards.

(10) Winning tape.

(11) Whistle

(12) Official badges.

(13) Safety pins.

(14) Result forms.

(15) Prize list.

(16) Competitors' numbers.

(17) Megaphones.

(18) First-aid box.

In making up the time-table it is important to avoid running the track and field events concurrently so that the competitors may take part in each class of events.

STANDARD IN ATHLETICS

(COLLEGES)

<i>Events</i>				<i>Time and Distance</i>
100 Yards	..	..	..	10.6 sec.
220 Yards	..	..	..	24 sec.
440 Yards	..	..	..	53 sec.
880 Yards	..	..	..	2 min. 1 sec.
1 Mile	..	..	..	4 min. 40 sec.
3 Miles	..	..	..	16 min. 20 sec.
120 Yards Hurdles	..	..	..	16.6 sec.
3 Miles Walk	..	..	..	28 min.
Hop, Step, and Jump	..	..	..	35 ft.
High Jump	..	..	..	5 ft. 4 in.
Long Jump	..	..	..	20 ft.
Putting the Shot	..	..	..	35 ft.
Discus	..	..	..	100 ft.
Javelin	..	..	..	145 ft.
Hammer	..	..	..	110 ft.
Pole Vault	..	..	..	10 ft.

(SCHOOLS)

Under 12 years

<i>Events</i>				<i>Time and Distance</i>
50 Yards	..	..	..	8 $\frac{1}{8}$ sec.
100 Yards	..	..	..	14 $\frac{1}{8}$ sec.
70 Yards Hurdles (Ht., 2 ft.)	..	..	..	20 sec.
200 Yards Hurdles (Ht., 2 ft. 3 in.)	..	..	..	39 sec.
High Jump	..	..	..	3 ft. 4 in.
Long Jump	..	..	..	12 ft.
Pole Vault	..	..	..	5 ft. 6 in.
Discus (2 lb. 3 $\frac{1}{4}$ oz.)	..	..	..	45 ft.
Shot (4 lb.)	..	..	..	28 ft.

Under 16 years

<i>Events</i>				<i>Time and Distance</i>
100 Yards	..	..	..	12 $\frac{3}{8}$ sec.
High Jump	..	..	..	4 ft. 5 in.
Long Jump	..	..	..	15 ft.
Pole Vault	..	..	..	7 ft.
Discus (2 lb. 3 $\frac{1}{4}$ oz.)	..	..	..	80 ft.
Shot (4 lb.)	..	..	..	28 ft.

STANDARD REQUIRED FOR THE INTER-SCHOOL ATHLETIC MEETING

<i>Events</i>				<i>Time and Distance</i>	
100 Yards	11 sec.
220 Yards	25 sec.
440 Yards	55 sec.
One Mile	4 min. 50 sec.
High Jump	5 ft. 3 in.
Long Jump	18 ft.
Pole Vault	8 ft.
Discus (2·2 lb.)	100 ft. 6 in.
Shot (10 lb.)	36 ft.
Javelin (Lgth., 7 ft. 2 in. Wt., $21\frac{3}{8}$ oz.)	130 ft.
Hammer (8 lb.)	100 ft.

Chapter IV

GAMES

ASSOCIATION FOOTBALL

ASSOCIATION football, or "Soccer" as it is popularly called, is played by eleven players on each side.

- 1 Goal-keeper.
- 2 Full-backs—left and right.
- 3 Half-backs—left, centre, and right.
- 5 Forwards—outside left, inside left, centre-forward, outside right, and inside right.

The object of each team is to kick the ball between the goal-posts of the opposing team. The five forwards are attackers, with the centre-forward as the chief attacker. The half-backs defend as well as attack, while the full-backs and goal-keeper are only defenders. All the play is made by kicking and heading the ball. No player is allowed to handle the ball except the goal-keeper, who can only do so in the goal area. The game lasts for two periods of 45 minutes, with an interval of 5 minutes at half-time. In soccer, as in rugby and hockey, no injured player may be replaced by a substitute during the game.

(For dimensions of "Soccer" pitch, see Appendix I.)

RUGGER

This game is played practically all over the world. It originated from the Association game by the action of a boy called Webb Ellis who picked up the ball during a school match. This introduced the handling code. It is played by fifteen players on each side, and the ball, which is oval

shaped, may be carried or kicked. The goal-posts are much higher than those used in Association football and they project far above the cross-bar.

There are four methods of scoring:

(1) By scoring a try—touching the ball down in the “in goal area” or behind the goal-posts, for which 3 points are awarded.

(2) A drop-kick which scores 4 points.

(3) A free kick giving 3 points.

(4) A penalty kick scoring 3 points.

A try may be converted by a place kick from a point on the field of play opposite to the point in the goal area where the try was scored. If the ball is successfully kicked between the two goal-posts and above the cross-bar, the try becomes a converted goal, equalling 5 points. If the attempt at the goal is unsuccessful, then the try is unconverted and the 3 points still stand.

The team is made up of—

1 Full-back.

4 Three-quarter backs—one left wing three-quarter, one left centre three-quarter, one right centre three-quarter, and one right wing three-quarter.

2 Half-backs—“scrum half” and “stand-off half.”

8 Forwards.

(For dimensions of rugger pitch, see Appendix I.)

CRICKET

Batting.—The player should be taught the correct grip of the bat and should be told to defend the wicket on the following principle:

He should play forward to any ball whose pitch he can reach without difficulty. His left foot must go out towards

the pitch of the ball, whilst the right foot remains inside the crease to prevent the possibility of stumping if he fails to strike the ball. With any ball that is pitched too far towards him he must step back on to his right foot.

After being taught that he must raise his bat for a stroke at about the time or soon after the ball leaves the bowler's hand, the player should be taught the methods of executing different strokes. It is important that every offensive stroke should be well followed through; in other words, that the bat should swing freely with the full force of the shoulders.

Bowling.—The player should be told to allow himself a good run so as to impart plenty of swing and speed to the ball. Then he should be told to pitch the ball on or near some marked spot, and this should be followed by teaching him methods of putting different "breaks" on the ball.

Fielding.—The correct way to gather the ball on or above the ground is the first thing to be taught, and regular catching practice of balls hit by the bat should be given. The best way is for all the players to be told to stand at a distance of about 50 yards from the coach and he should hit the balls one by one to each player. They should catch them and throw them in smartly to the wicket-keeper, who stands close to the coach. This gives practice to the wicket-keeper as well as the players.

BADMINTON

This game is as vigorous as tennis, though it is considered by many to be a ladies' game because light rackets and shuttlecocks are used for it. Actually, it requires quicker movement and better balance than does tennis.

Apparatus.—A badminton racket and shuttlecock, and a light net which at its centre should be 5 feet from its top to the floor level.



Prince Duleepsinhji. A good hit—note the footwork

Court.—The width of the court varies in Singles and Doubles. See Appendix I.

The Play.—The server serves from inside the court and not the outside as in tennis. The shuttle is hit by the racket, which must not be above the height of the server's waist. "A" court serves to the "B" and only the serving side scores.

Score.—The team which scores 15 points first in Singles and 21 points in Doubles wins the game, except in Ladies' Singles, when the points are 11 for Singles.

VOLLEY-BALL

This game gives vigorous exercise and requires only a small space for play.

Apparatus.—A volley-ball, with a football bladder (size 5). (This size should be varied according to the age of the players.) A net like badminton, with two posts of 8 ft. in height.

Court.—The length of the court should not exceed 60 ft. and the width 35 ft. The boundaries should be 3 ft. away from the sides. The net should be exactly on the centre line at a height of 8 ft.

The Play.—The captains can toss and the winner can choose either service or court.

Arrangement of the Players.—No. 1 of the court "B" bats the ball into "A" court with one or both hands. While batting, his feet are behind the court line. As soon as the team of "A" court fails to return the ball, the server continues until he is out, or his side is out. It is here that court "B" has to rotate clockwise.

Score.—The team which scores 15 points first wins the game.

TENNIS

Racket.—The racket used by a beginner need not be an expensive one, but it must be tightly strung.

Grip and Footwork.—All the different grips of the racket should be taught, viz.:

Backhand grip.

Forehand grip.

Service grip.

Volleying grip.

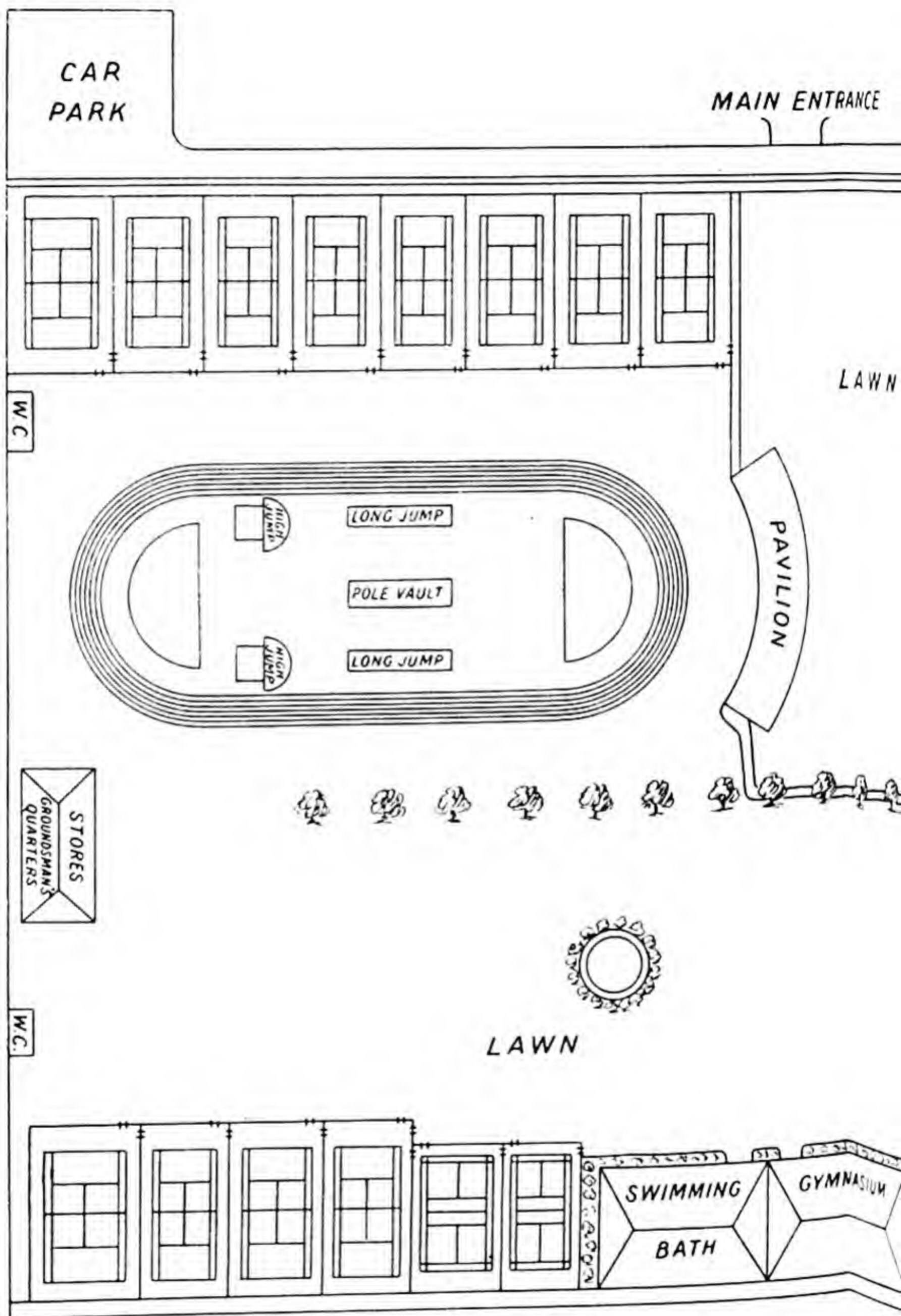
The footwork for different strokes should be explained and then the player should be told to hit the ball over the net into his opponent's court. The art of volleying should be taught at a later stage, and not at the beginning.





Perry hitting a perfect shot

SUGGESTED LAYOUT FOR RECREATION GROUND



SUGGESTED LAY OUT FOR RECREATION GROUND OF ABOUT 10 ACRES.
CAPACITY 1500 PERSONS AT A TIME.

ENTRANCE

CAR
PARK

ENTRANCE

LAWN



SWIMMING
BATH

GYMNASIUM

SHELTER

LAWN

SAND

ENTRANCE

LAWN

LAWN

W.C.

GYMNASIUM

ENTRANCE

Chapter V

PLAYING FIELDS AND RECREATIONAL CENTRE

THE keen interest of the public in recreation and the love of games demands a growing need for playgrounds, not only for school children but for all members of the community. The school authorities of the larger towns are trying their best to acquire playing fields, but owing to limited space they are unable to provide the children with the necessary open-air life and healthy surroundings. By constant propaganda the Government or municipality may take a lead in encouraging the playing fields and recreational movement, but even for them it will be difficult to acquire the sites, and they will have to pay a heavy amount as the land may otherwise be bought for housing purposes. Secondly, the sites acquired might be at a distance of over two miles from the school premises, which will take much of the time and energy of the children in walking to such fields. A suggested scheme is that the authorities institute—

1. PLAY STREETS

This scheme was first introduced into Great Britain by the National Playing Fields Association. They found it very difficult to acquire sites in big cities such as Manchester, Leeds, etc., hence the inauguration of the play street movement by which certain streets were closed for vehicular traffic during certain hours of the day to enable the school children to have their birthright "play." This scheme has proved most successful. Take, for example, the city of Salford. This is a densely populated and congested district second only to the metropolis of Manchester. The daily

vehicular traffic is nearly 1,650 an hour and in rush hours on the busiest streets it is increased to 2,400. The approximate number of school children who use the "play streets" during the day is over thirty thousand, and since the inauguration of this scheme not a single accident has been notified. In 1929 only forty-eight streets were closed for vehicular traffic, but the achievement has proved such a great success that now two hundred streets are under this scheme.¹

2. THE "OXFORD CRICKET SCHEME"

In 1921 a scheme was introduced at Oxford by which all the school children were allowed to use the College playing fields for certain hours and coaching was given by the undergraduates of different colleges. This was followed by a suggestion from the M.C.C. that all clubs which were affiliated to them should allow the school children to use the playing fields. This request had the desired effect and to-day many children benefit from this system.

3. "TRANSPORT SYSTEM"

As the majority of schools are situated in the heart of the city, the heads of the schools will find it very difficult to have the playgrounds near the premises. They should try to acquire a ground as near as possible, but away from the congested area, either on a rental basis or hire-purchase system. The school children should be sent there at regular hours by special buses (a group of schools may own a private bus), and the schools should try to get the transport authorities to charge a specially reduced fare which should be supplemented through the municipal or Government grant. They should issue a printed card to be presented by

¹ The above figures are from the speech of Major Cedric V. Godfrey, Chief Constable of Salford, in his address given to the Royal Society of Arts.

the school children to the tramcar or omnibus conductors as the case may be, and should also request the companies concerned to provide every facility for this special service.

The co-operation of all authorities is the most urgent need. The gymnasium clubs and colleges should be approached by the local authorities and a time-table should be arranged with mutual understanding. The school should send a responsible person to look after the children so that no damage is done to the pavilion or any other property on the sports ground and also to provide coaching under proper supervision.

The supervisor should see—

- (a) That every child has been provided for and not a selected few.
- (b) That all the children are playing in an organized manner.
- (c) That the lay-out of different games has been made before they arrive on the field.
- (d) That the equipment has arrived before time.
- (e) That the marking of different courts has been made by keeping 10 yards boundary to avoid obstruction from different groups.
- (f) That the groups are changed to different courts at regular intervals so as to allow all the children to play all the games.

RECREATIONAL CENTRE

The Recreational Centre is the offshoot of the Playground Movement of America which is over forty years old. These centres are opened to provide the public with healthy surroundings and to enable people to utilize their leisure time for development of both mind and body under trained teachers. In these centres different games, physical

exercises, and other activities are taught. This scheme includes all the branches of physical education, including gymnasia, swimming pools, running tracks, open fields for minor games, and different courts for organized games. The author has given a model of a recreational centre, allowing 49 square feet of land per head, which is considered by American authorities to be the minimum space required. The lay-out covers ten acres of land, which gives separate lawns for men, women, and children, gymnasium, swimming pools, tennis courts, badminton courts, running track, and a pavilion. This will provide for a total attendance of over two million people per year.¹

¹ Gary School Commission's Report, America, 1912.

Chapter VI

CAMPING

It was the Scout movement that made camping one of the events in school life. The life in the open air is one of its chief advantages, while the recreation, co-operation, and discipline involved are all valuable in developing character.

The camps are of three kinds:

1. UNIVERSITY TRAINING CORPS OR INDIAN TERRITORIAL FORCE

This camp is based on military principles where the members have to attend parades and carry out the programme assigned to them by the officials.

2. HOLIDAY CAMP

This camp should be held right away from city life where there are no hotels, theatres, or cinemas, etc. The aim should be to lead a natural life, to do things according to your own choice and to form your own time-table. These camps are frequently organized nowadays in schools, colleges, and clubs at week-ends.

3. SCHOOL CAMP

This has the same advantages as the other camps; also the children are taught self-reliance and they see the teachers of the school staff from a fresh angle. The regular school time-table is observed during certain hours, and subjects like Geography, Nature Study, Hygiene, and History are taught.

Important factors which make for the success of camp life are:

Site.—This is of the first importance to every one. It must not be so far distant that all the funds available are spent in travelling. If possible it should be near the sea so that swimming can be enjoyed. Sanitation should be conveniently placed and other essentials like milk, fresh water, and fuel must be near at hand.

Duration.—Anything less than a week for the junior boys and girls of the Middle school and ten days for the senior boys and girls of the High school does not enable them to derive the full benefit from camp life.

Number.—The ideal numbers are over thirty and less than forty-five for junior boys and girls, and over forty and less than seventy for High school students. This enables the organizer to be in close touch with every student and yet provides the opportunity for social intercourse.

Staff.—The staff should be well trained and must have experience of camp life. The domestic work should be done by a paid staff so that the campers may have ample time for recreation and for visits, etc.

The other officials should be:

The Chief Officer, who will look after the general management and supervision of the camp, issue orders, and inspect the equipment.

Storekeeper, who will be in charge of the purchasing of foodstuffs and of keeping the store tidy.

Banker.—This officer will look after the finances of the camp. Campers should give their pocket-money to this officer for safety and should be given a bank-card whereon the depositor's name and the amount deposited should be written. They should be allowed to withdraw money once a day at a scheduled time.

Medical Officer.—He should have all the necessary equipment for First-aid, including the following:

Bandages.
Boracic lint.
Safety-pins.
Scissors.
Cotton-wool.
Ammonia.
Tincture of iodine.
Thermometer (clinical).
Tweezers.
Lysol.
Ammoniated quinine.
Bicarbonate of soda.
Surgical plaster.

It should be a rule that illness or accident of any kind should be reported immediately to him.

TENTS

When selecting the tent, care must be taken regarding the size and the weight. The ideal size would be 7 ft. long, 6 ft. 6 in. wide, 6 ft. 9 in. high, with walls 3 ft. high. After packing, the size should be 36 in. by 9 in., and total weight including poles should be 25 lb. This allows comfortable room for two persons. The number of tents taken will of course depend on the number of campers. Each officer should have a large tent with the area of 12 ft. by 12 ft. which will also accommodate twelve campers for sleeping. The organizers should see that a separate tent is kept for storeroom and general equipment.

LAY-OUT

The camp should be of a triangular shape or a rectangle. The diagram shows the exact place where kitchen,

officers' tent, and store tent should be erected. Latrines should be at least 150 yd. from the campers' tents and

CAMP PLAN

FIG. I

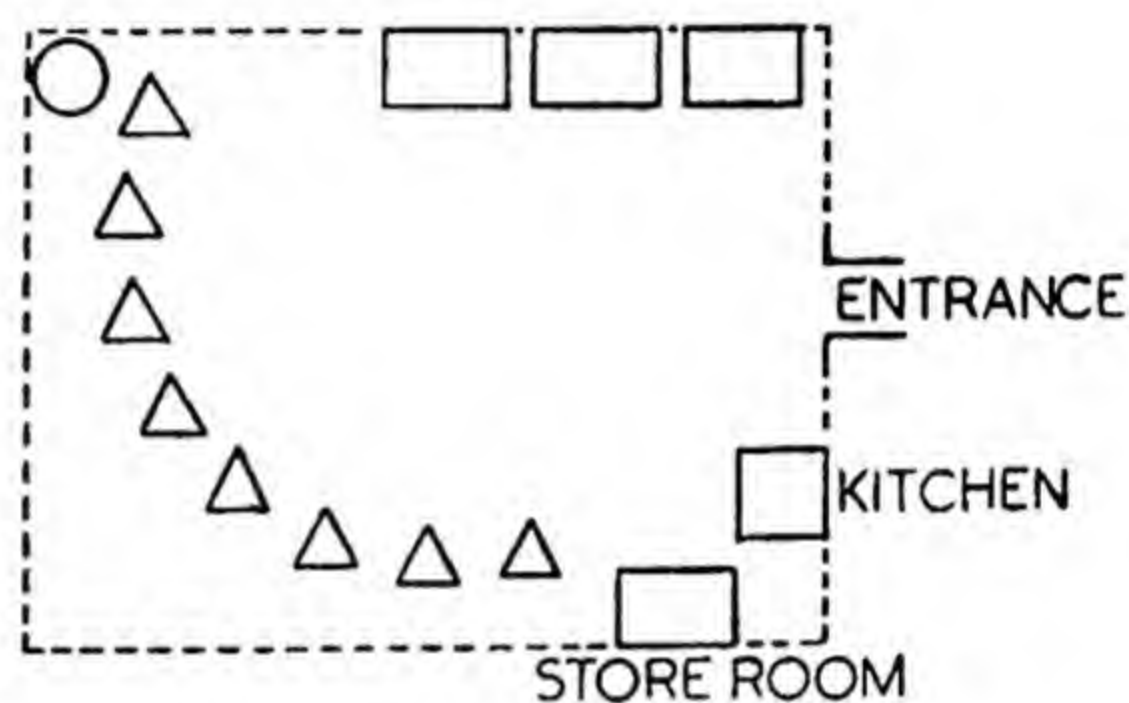
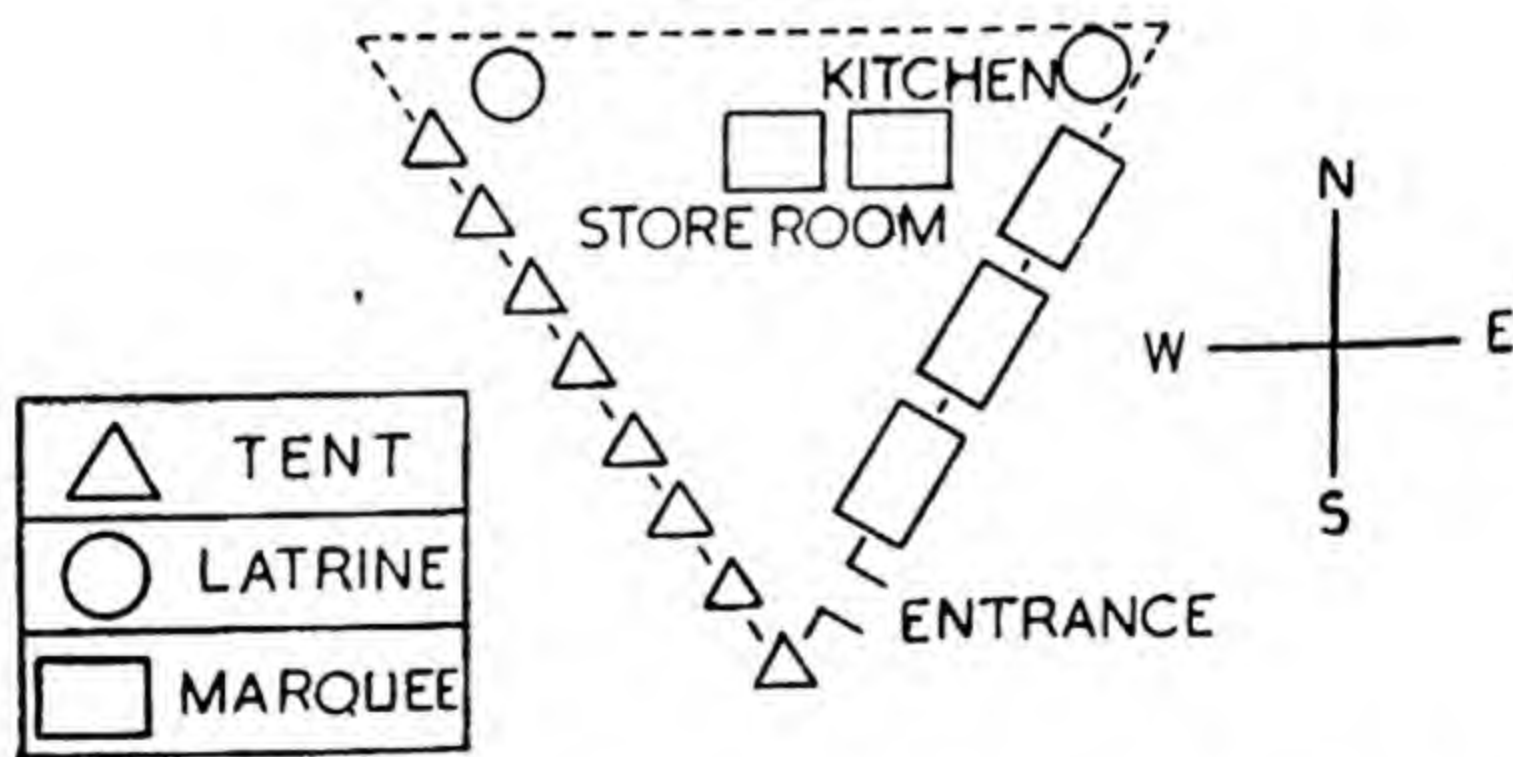


FIG. II



kitchens should be near the water supply. Both places should be roped off.

EQUIPMENT

It is essential to make a list of all things which are required for the duration of the camp. Kitchen arrangements and articles of foodstuffs should be purchased and the copy of the detailed list should be handed over to the chief officer. The organizers should see that all arrangements have been made for bathing, washing, tent accommodation, latrines and refuse pit. A full list of personal kit which the campers should bring with them must be given in a written form. It should include:

Baggage.—(1) Kit bag or suitcase which must be labelled with the owner's name. (2) A ground sheet, pillow, one blanket, one bed sheet.

Clothes.—Every student must be in the school uniform and must have:

2 sports shirts.

2 pairs grey flannel or khaki shorts (trousers must not be allowed in camp).

Shoes.

2 towels and soap.

Tooth-brush.

Bathing costume.

1 suit pyjamas.

Handkerchiefs.

Hairbrush and comb.

Personal musical instruments, if brought, should be given into the care of the storekeeper or a senior boy who is his assistant. Photographers should take care of their own cameras. If the girl students have any valuables with them, they should take care to see that they have given them to the banker after dinner and they should ask for a receipt.

DAILY PROGRAMME

This varies according to the age of the campers, and the chief officer should see that there is entertainment in every event.

FOR BOYS AND GIRLS UNDER 15 YEARS

Camp Time Table

Morning Tea	6.45 a.m.
Prayer	7.15 a.m.
Mass Physical Drill ..	7.25 a.m.
Inspection	8.15 a.m.
Swimming or Bathing	8.30 a.m.
Roll Call	9.40 a.m.
Geography	9.45 a.m. to 10.25 a.m.
Nature Study	10.30 a.m. to 11.10 a.m.
Lunch	11.30 a.m. to 12 noon
Rest after Lunch ..	12 noon to 3 p.m.
Organized Games	
Afternoon Tea	
Camp Fire:	
Sing-Songs	5.40 p.m. to 7.30 p.m.
Story Telling	7.30 p.m. to 8.15 p.m.
Dinner	8.30 p.m. to 9 p.m.
Prayer and Roll Call	9.20 p.m.
Retire	9.30 p.m.
Lights Out	9.45 p.m.

COST

The cost will mostly depend on the selection of the place, and organizers should see that it is not more than Rs.5. The school authorities should donate one-fifth of the expense of each camper, and they must give even a poor student a chance to attend this camp either by contributing from the Poor Boys' Fund or from the school. The Local Educational Committees or the Public Instruction Department of every province should stress this point that a certain amount must be used from the Government grant towards the camp. The boys should be told to start "savings"

for the annual camp at the rate of As.4 a month. If the amount required is greater than their budget, campers should try to raise some amount by presenting concert or variety entertainments to the public, with a minimum entrance fee of As.2 per head. This will also add to their financial stability.

IMPORTANT NOTES

(1) Every student must be examined by the school medical officer or he must get a certificate from the family doctor that he or she is fit to join the camp.

(2) No camper must be allowed to leave the camp without permission from the officers.

(3) Swimming should only be allowed when an officer is present.

(4) Silence after lights out must be strictly adhered to.

(5) The officers should see that no leave after dinner is granted.

(6) Groups should be formed of eight students under a leader and two groups should make a section. Each should be given a number.

(7) Students should be given some fatigue duties like assisting the kitchen staff, supplying water for drinking, etc.

(8) A family spirit and a high moral tone should be encouraged amongst all the groups.

Note on Training Colleges (see page 21)

The Carnegie College, Leeds, Loughborough College, Leicestershire, and the Jordanhill Training Centre, Glasgow, supply the necessary qualified men teachers, while women teachers are trained at the Anstey, Bedford, Bergman-Osterberg, Chelsea and Dunfermline Colleges, recognized by the Ling Physical Education Association, and also at the Liverpool, Queen Alexandra House and Nonington Colleges.

Chapter VII

MEDICAL EXAMINATION

A SCHOOL medical service is inaugurated in every country of the West. In the United Kingdom it was in 1907 that the Education Act was passed which obliged all the local education authorities to have the school children medically examined. The evidence of the school inspectors and their statistics show that there has been a great improvement in the health of the school population during the past twenty-five years. The following tables published by the Chief Medical Officer of the Board of Education, in his report for the years 1931 and 1936, show the more recent improvement:

				<i>No. of Cases</i>	
				1931	1936
Skin Disease	..	..	..	20,157	16,215
Defects of Vision	..	..	..	99,758	87,659
Squint	..	..	..	15,400	13,334
Other Eye Diseases	..	..	..	14,568	11,776
Defects of Hearing	..	..	..	6,759	4,995
Otitis Media	..	..	..	8,891	6,947
Enlarged Tonsils and Adenoids				113,562	34,657
Other Throat and Nose Defects				10,261	11,407
Organic Heart Disease	..			3,071	2,790
Pulmonary Tuberculosis:					
Definite	..	..	..	341	163
Suspected	..	..	..	1,145	723
Nervous Diseases	..	..	..	3,520	2,327
Deformities	..	..	..	16,383	14,238

- Looking at these figures and considering the benefits achieved through such medical examination, I think that in India too the school population should be examined by a school medical officer, once in the elementary school and

once in the Middle school and High school. The inspection should be of a formal nature and the date should be notified a week in advance so as to enable one of the parents to be present at the medical examination. This is important, as it is necessary to have the child's medical history and that of the family. Printed cards should be sent to the parents with a note of any defects which are found, together with particulars of the treatment which they should follow. The card should be based on these lines:

PART I

Name
(Surname first)

Date of Birth.....

Address

School

Occupation of parents:

Father

Mother

Personal History:

(a) Previous illness of child (before admission)

Measles.....

Scarlet fever

Whooping cough

Diphtheria

Chicken-pox.....

Other illnesses.....

(b) Family medical history.....

PART II

		<i>First</i>	<i>Second</i>	<i>Third</i>
1. Date of inspection	.. ..		
2. Attendance	.. ..		
3. Age of child	.. ..		
4. Clothing and footgear	.. ..		
5. Height	.. ..		
6. Weight	.. ..		
7. Nutrition	.. ..		
8. Cleanliness	{ Head			
	{ Body			
9. Condition of skin	.. ..		
10. Nose and Throat	{ Tonsils			
	{ Adenoids			
	{ Submax. and cervical glands			
11. External eye disease	.. ..		
12. Vision	{ L.			
	{ R.			
13. Ear disease	.. ..		
14. Hearing	.. ..		
15. Speech	.. ..		
16. Mental condition	.. ..		
17. Heart and circulation	.. ..		
18. Lungs	.. ..		
19. Nervous system	.. ..		
20. Tuberculosis	.. ..		
21. Rickets	.. ..		
22. Deformities, spinal disease, etc.				
23. Infectious or contagious diseases				
24. Other diseases or defects				

Medical officer's initials

PART III

General observations

Direction to parents

Direction to teacher

Action taken

PARENTS' DUTY

The father or mother should make it a point to attend the medical examination of their child and should take the advice of the school medical officer regarding food, exercise, hours of rest, and general health. When the medical officer recommends treatment, his advice should be followed immediately. If the child's eyesight needs treatment, an oculist must be consulted. The teeth are another point. Many of the children do not like to visit the dentist and mothers try to put it off just to please the child. This common mistake has ruined the health of many children through the development of pyorrhœa. The mothers wait until the child complains about the toothache, when it may be too late to repair the tooth. Parents should be urged to co-operate whole-heartedly with school medical officers and thereby help their own children to lead a good and healthy life.

Chapter VIII

FOOD AND MALNUTRITION

It is essential to know what kind of food we should eat as it supplies energy for the working of the body. Food differs in different parts of India, but if chemically analysed it falls into three main groups:

- (a) Proteins,
- (b) Fats, and
- (c) Carbohydrates.

Proteins.—These are complex substances found in the organic food. They provide energy and help to make new protoplasm which replaces old cells.

Fats.—These are compounds of glycerine with certain organic acids. They can be obtained from two origins—animal origin and vegetable origin. They also provide energy.

Carbohydrates.—They consist of carbon, hydrogen, and oxygen. They also provide energy.

These three factors are the necessary constituents of a balanced diet. The famous physiologist, Atwater, after his researches, found out that this balance must be in the ratio of one-fifth proteins, one-fifth fats, and three-fifths carbohydrates. The quantity required for a man is 40 calories of food for each kilogram of weight in the body and 30 calories in a woman; thus a man weighing 180 lb. will require 3,200 calories a day. The scientist further discovered that not only proteins, carbohydrates, and fats are necessary to make a complete diet, but also vitamins A, B, C, D, and E. (When it was found out that vitamins were necessary to ensure a balanced diet, the scientists were unable to find

their chemical nature, so they used the alphabet A, B, C, D, and E. Most of these are included in the normal diet.)¹

Vitamin A.—It is soluble in fats and it is found in egg yolks, butter, milk, green vegetables. The best source is cod-liver oil.

Vitamin B.—It is a complex body which is soluble in water. It consists of over six fractions, but the main are B₁ and B₂. They are found in liver, eggs, and beef.

Vitamin C.—It is found in green vegetables, fresh fruits, and juices.

Vitamin D.—It is closely connected with Vitamin A and is present in egg yolks and cod-liver oil.

Vitamin E.—It is found in meat, milk, green vegetables, and seed oils.

USES

Vitamin A.—It is necessary for the growth of the body and gives resistance to infection. The absence of this vitamin can lead to an eye disease known as xerophthalmia.

Vitamin B.—It also assists growth, and absence of this vitamin B causes the disease known as beri-beri, while absence of B₂ causes pellagra.

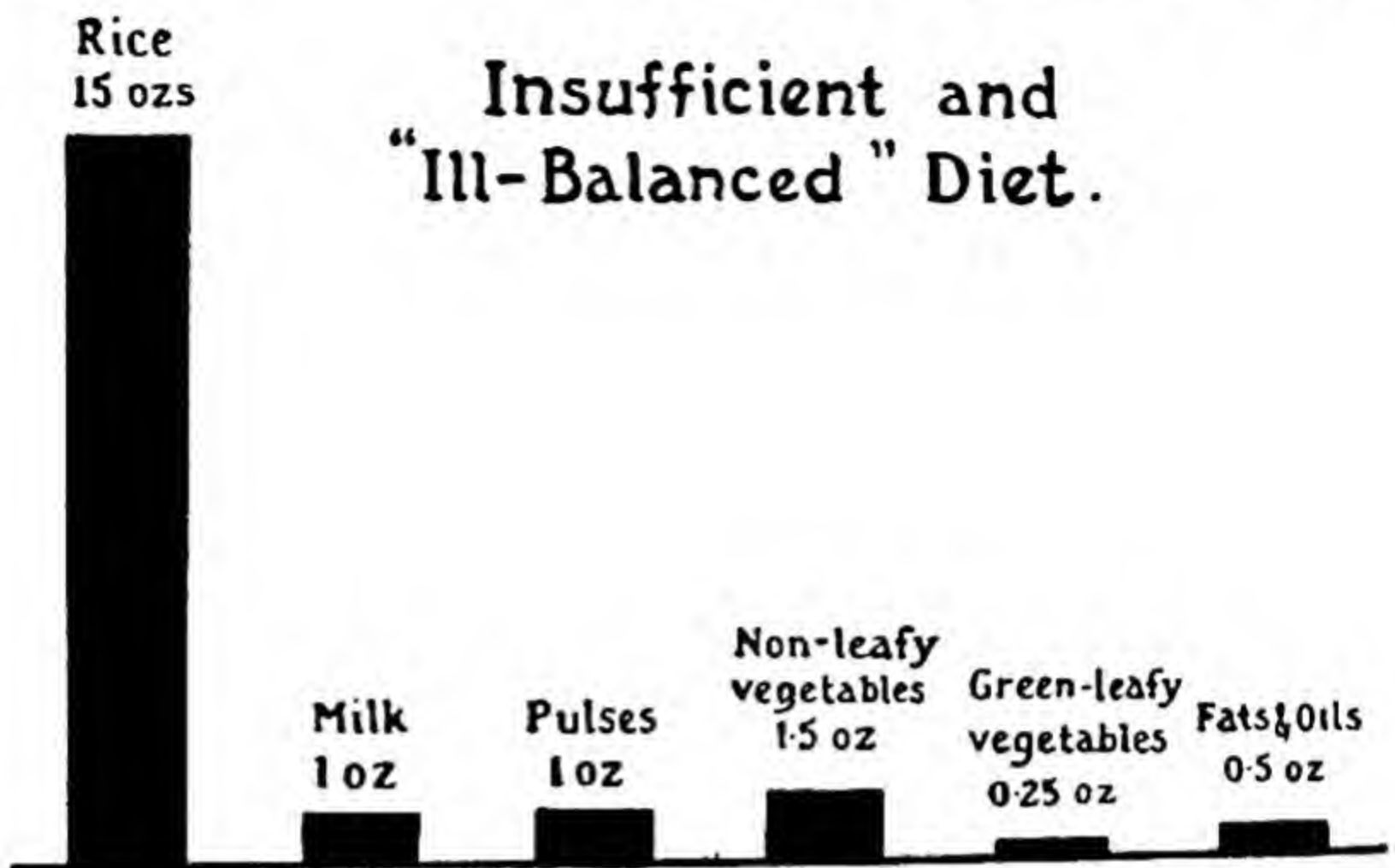
Vitamin C.—This provides food for the blood vessels and its absence causes scurvy.

Vitamin D.—It provides food for bones and teeth and its absence causes rickets in children.

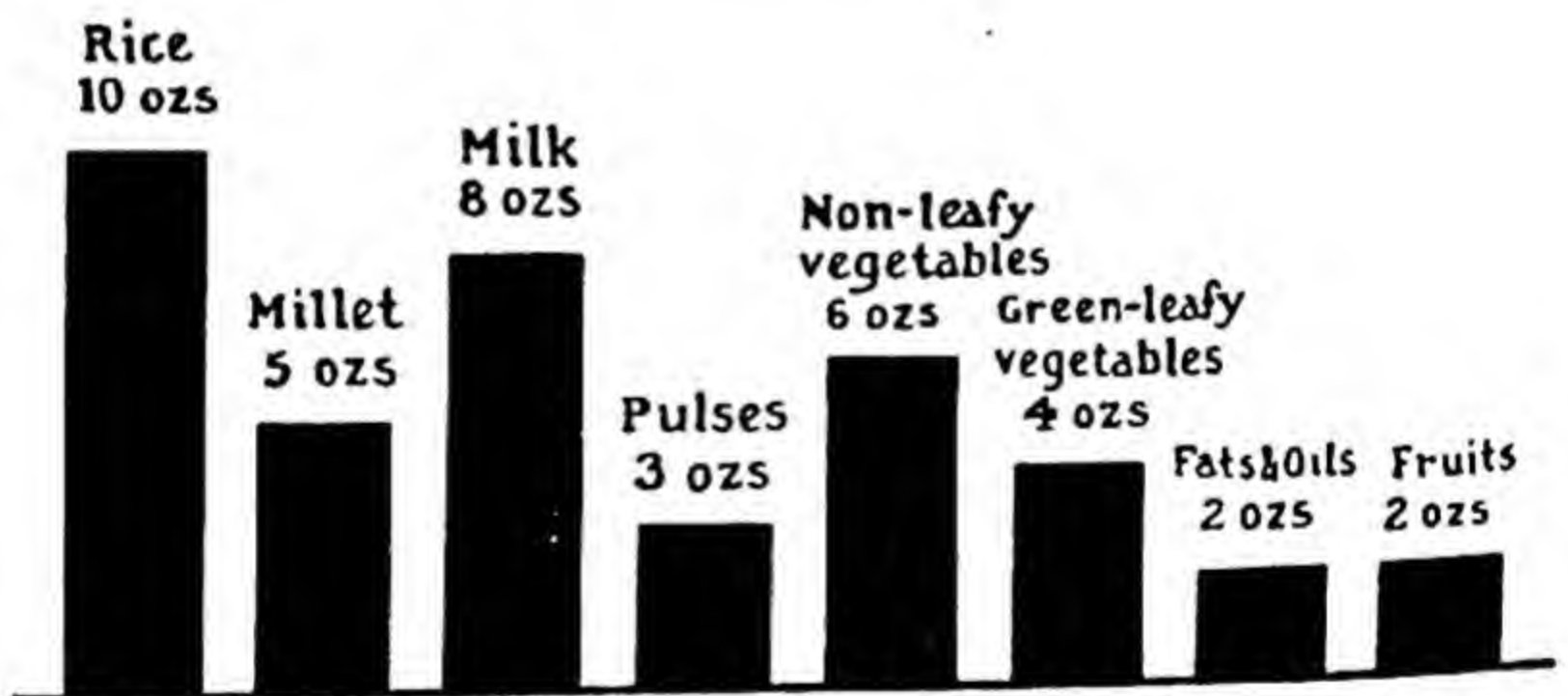
Vitamin E.—It helps to provide natural breast food for the child and its absence may result in bad development of the body. (This is generally given to an expectant mother.)

Diet should be well balanced so as to give complete food to the body.

¹ Mulliner's *Book of Anatomy and Physiology*.



"Well-Balanced" Diet.



It should contain all the essential elements like vitamins, carbohydrates, proteins, fats, mineral salts, and fluid. A well-balanced table of diet is shown above.¹

¹ Health Bulletin, No. 23, Government of India Press, Simla.

MALNUTRITION

It is generally due to many factors, but the chief is bad choice of food. Many children are neglected at home, owing to poverty and some owing to lack of knowledge and ignorance of dietetics. The most essential need of to-day is to give every knowledge as far as possible regarding hygiene, dietetics, and proper cooking to the future wives and mothers. Great Britain has introduced an immediate remedy for under-nourished children by giving milk in the schools. Milk is practically a complete food in itself which can be seen from its composition:

<i>Water</i>	<i>Sugar</i>	<i>Proteins</i>	<i>Fats</i>	<i>Salts</i>
87.4	4.7	3.4	3.8	0.7

At the same time it is the breeding ground of dangerous germs like tuberculosis. To prevent this the "pasteurization process"¹ has been given effect to and also the "tubercular test."

¹ This process was invented by the French bacteriologist, Pasteur.

Chapter IX

CARE OF THE CHILD

As soon as the child draws its first breath in this world the mother's responsibility of bringing up the child in healthy conditions begins. Not only mothers, but girls who are the wives of the future should share in the heavy responsibility of bringing up healthy citizens of the future. They must learn child welfare and mothercraft and should visit infant welfare centres where they can learn from the women volunteers and nurses how to bring up the child in the best possible way. Here are some of the principles taught.

Feeding.—A child's first four months of feeding should be of its mother's milk (natural breast feeding), but if the mother is unable to feed her baby for some reason, then sweetened and diluted cow's milk is the best substitute, as it contains practically all the elements of human milk.

		<i>Proteins</i>	<i>Sugar</i>	<i>Fats</i>
Cow's milk ..	..	20	20	20
Human milk ..	..	8	35	17

The second four months should include orange juice, sweetened water, cow's milk, and the mother's milk should be curtailed. The feeding should be roughly at intervals of $3\frac{1}{2}$ hours, i.e. 6.30 a.m., 10 a.m., 1.30 p.m., 4 p.m., 7.30 p.m., and 10.30 p.m. As a rule no feeding must be given between 10.30 p.m. and 6.30 a.m.

If artificial feeding-bottles are used, then care must be taken to clean them thoroughly between every feed so as to prevent germs from thriving.

The Comforter.—This leads to the bad habit of the baby breathing through its mouth, because the comforter keeps

the child's mouth open when it is asleep. This may result in enlarged tonsils. The comforter is often handled by several people and sometimes allowed to lie about; thus it collects germs and may be the cause of serious illness. Also when the baby sucks the comforter and gets no food it thinks that it has been cheated. Undoubtedly it is best to avoid the use of this article.

Clothing.—This should be comfortable, light, and washed every day. The clothes should be changed according to the seasons, and in summer lighter and thinner garments should be worn.

Bed.—It should be warm and clean, and the mattress should be protected by a strip of mackintosh to prevent it from getting wet. The child should have a firm, small pillow and a light blanket for covering.

Sleep.—The greater part of a baby's programme should be sleep, and it should be given as much fresh air as possible. The bed must be away from the other members of the family to enable the baby to breathe pure air and not air which has been used by other people.

Cleanliness.—The baby should be given a bath in the morning in a warm room protected from draughts by curtains or screens. The water should be 101° F. for the first few weeks and should be gradually reduced to 82° F. The baby's eyes should be gently and carefully wiped from the inside outward with a piece of sterile cotton-wool dipped in warm boracic lotion. The nostrils should be cleaned with a twisted piece of cotton-wool dipped in the same lotion. The face should be cleaned with a face cloth but not with soap, and all the parts of the body should be rubbed gently with soaped hands and then rinsed with the water. The baby should be carefully dried with a towel.

APPENDIX I

LAWS AND RULES

CRICKET

AS REVISED BY THE MARYLEBONE CLUB,
1884, 1889, 1894, 1899, 1900, 1902, 1906, 1908,
1910, 1912, 1914, 1919, 1922, 1924, 1927, 1928,
1931, and 1935

1. A match is played between two sides of eleven players each, unless otherwise agreed to; each side has two innings, taken alternately, except in the case provided for in Law 53. The choice of innings shall be decided by tossing.

2. The score shall be reckoned by runs. A run is scored:

1st. So often as the batsmen, after a hit, or at any time while the ball is in play, shall have crossed, and made good their ground, from end to end.

2nd. For penalties under Laws 16, 34, 41, and allowances under 44.

Any run or runs so scored shall be duly recorded by scorers appointed for the purpose. The side which scores the greatest number of runs wins the match. No match is won unless played out or given up, except in the case provided in Law 45.

3. Before the commencement of the match two Umpires shall be appointed, one for each end.

4. The Ball shall weigh not less than five ounces and a half nor more than five ounces and three-quarters. It shall measure not less than eight and thirteen-sixteenths inches nor more than nine inches in circumference. At the beginning of each innings either side may demand a new ball.

5. The Bat shall not exceed four inches and one quarter

in the widest part; it shall not be more than thirty-eight inches in length.

(See "Umpires," page 83.)

6. The Wickets shall be pitched opposite and parallel to each other at a distance of twenty-two yards. Each wicket shall be not less than eight inches nor more than nine inches in width, and consist of three stumps, with two bails upon the top. The stumps shall be of equal and of sufficient size to prevent the ball from passing through, not less than twenty-seven inches nor more than twenty-eight inches out of the ground. The bails shall be each not less than four inches nor more than four inches and a half in length, and when in position, on the top of the stumps, shall not project more than half an inch above them. The wickets shall not be changed during a match, unless the ground between them becomes unfit for play, and then only by consent of both sides.

7. The Bowling Crease shall be in line with the stumps, eight feet eight inches in length; the stumps in the centre; with a Return Crease at each end, at right angles behind the wicket.

8. The Popping Crease shall be marked four feet from the wicket, parallel to it, and be deemed unlimited in length.

9. The Ground shall not be rolled, watered, covered, mown or beaten during a match, except before the commencement of each innings and of each day's play, when, unless the in-Side object, the ground shall be swept and rolled for not more than seven minutes. This shall not prevent the batsman from beating the ground with his bat, nor the batsman nor bowler from using sawdust in order to obtain a proper foothold.

ADDITION TO LAW 9

FOR AUSTRALIA, SOUTH AFRICA, AND NEW ZEALAND.—
In the event of rain falling on any day after the commence-

ment of a match prior to or during the currency of that day's play, the groundsmen shall cause the wicket to be swept and rolled for not more than ten minutes after the close of that day's play, at any time before the commencement of the next day's play, whenever he is of the opinion that such rolling will improve the wicket, and he will use such roller, after consultation with the two captains, as he thinks best calculated to produce that effect. This sweeping and rolling shall not affect the right to sweep and roll provided for in Law IX of the Laws of Cricket.

10. The ball must be bowled; if thrown or jerked, either Umpire shall call "No ball."

11. The Bowler shall deliver the ball with one foot on the ground behind the bowling crease, and within the return crease, otherwise the Umpire shall call "No ball."

12. If the Bowler shall bowl the ball so high or so wide of the wicket that, in the opinion of the Umpire, it is not within reach of the Striker, the Umpire shall call "Wide Ball."

13. The ball shall be bowled in Overs of six balls from each wicket alternately. When six balls have been bowled, and the ball is finally settled in the Bowler's or Wicket-keeper's hands, the Umpire shall call "Over." Neither a "No Ball" nor a "Wide Ball" shall be reckoned as one of the "Over."

14. The bowler shall be allowed to change ends as often as he pleases, provided only that he does not bowl two overs consecutively in one innings.

15. The Bowler may require the Batsman at the wicket from which he is bowling to stand on that side of it which he may direct.

16. The Striker may hit a "No Ball," and whatever runs result shall be added to his score; but he shall not be out from a "No Ball" unless he be run out or break Laws 26, 27,

29, 30. All runs made from a "No Ball," otherwise than from the bat, shall be scored "No Balls," and if no runs be made, one run shall be added to that score. From a "Wide Ball" as many runs as are run shall be added to the score as "Wide Balls," and if no run be otherwise obtained one run shall be so added.

17. If the ball, not having been called "Wide" or "No Ball," pass the Striker without touching his bat or person, and any runs be obtained, the Umpire shall call "Bye," but if the ball touch any part of the Striker's person (hand excepted), and any run be obtained, the Umpire shall call "Leg Bye," such runs to be scored "Byes" and "Leg Byes" respectively.

18. At the beginning of the match, and of each innings, the Umpire at the Bowler's wicket shall call "Play"; from that time no trial ball shall be allowed to any bowler on the ground between the wickets, and when one of the batsmen is out, the use of the bat shall not be allowed to any person until the next batsmen shall come in.

19. A Batsman shall be held to be "out of his ground" unless his bat in hand, or some part of his person be grounded within the line of the Popping Crease.

20. The Wicket shall be held to be "down" when either of the bails is struck off, or if both bails be off, when a stump is struck out of the ground.

The Striker is out—

21. If the wicket be bowled down, even if the ball first touch the Striker's bat or person: "Bowled."

22. Or, if the ball, from a strike of the bat or hand, but not the wrist, be held before it touch the ground, although it be hugged to the body of the catcher: "Caught."

23. Or, if in playing at the ball, provided it be not touched by the bat or hand, the Striker be out of his ground, and the wicket be put down by the Wicket-keeper

with the ball, or with hand or arm, with ball in hand: "Stumped."

24. The Striker shall be out L-B-W. if with any part of his person (except his hand) which is between wicket and wicket he intercept a ball which, in the opinion of the Umpire at the Bowler's wicket, shall have been pitched in a straight line from the Bowler's wicket to the Striker's wicket or shall have been pitched on the off side of the Striker's wicket and would have hit it.

25. Or, if in playing at the ball, he hit down his wicket with his bat or any part of his person or dress: "Hit wicket."

26. Or, if under pretence of running, or otherwise, either of the batsmen wilfully prevent a ball from being caught: "Obstructing the field."

27. Or, if the ball be struck or be stopped by any part of his person, and he wilfully strike it again, except it be done for the purpose of guarding his wicket, which he may do with his bat, or any part of his person, except his hands: "Hit the ball twice."

Either Batsman is out—

28. If in running, or at any other time, when the ball is in play, he be out of his ground, and his wicket be struck down by the ball after touching any fieldsman, or by the hand or arm, with ball in hand, of any fieldsman: "Run out." But the Striker may not be out thus, unless the ball has touched the bat or hand, when, in playing at a No Ball he be out of his ground and the wicket be put down by the Wicket-keeper with the ball, or with hand or arm with ball in hand.

29. Or, if he touch with his hands or take up the ball while in play unless at the request of the opposite side: "Handled the ball."

30. Or, if he wilfully obstruct any Fieldsman: "Obstructing the field."

31. If the Batsmen have crossed each other, he that runs for the wicket which is put down is out; if they have not crossed he that has left the wicket which is put down is out.

32. The Striker being caught no run shall be scored. A Batsman being run out, that run which was being attempted shall not be scored.

33a. A Batsman being out from any cause, the ball shall be "Dead."

33b. If the ball, whether struck with the bat or not, lodges in a Batsman's clothing, the ball shall become "Dead."

34. If a ball in play cannot be found or recovered, any Fieldsman may call "Lost Ball," when the ball shall be "Dead"; six runs shall be added to the score; but if more than six runs have been run before "Lost Ball" has been called, as many runs as have been run shall be scored.

35. After the ball shall have been finally settled in the Wicket-keeper's or Bowler's hands, it shall be "Dead"; but when the Bowler is about to deliver the ball, if the Batsman at his wicket be out of his ground before the actual delivery, the said Bowler may run him out; but if the Bowler throw at that wicket and any run result, it shall be scored "No Ball."

36. A Batsman shall not retire from his wicket and return to it to complete his innings after another has been in, without the consent of the opposite side.

37. A Substitute shall be allowed to field or run between wickets for any player, who may during the match be incapacitated from illness or injury, but for no other reason, except with the consent of the opposite side.

38. In all cases where a Substitute shall be allowed, the consent of the opposite side shall be obtained as to the person to act as Substitute, and the place in the field which he shall take.

39. In case any Substitute shall be allowed to run between wickets, the Striker may be run out if either he or his Substitute be out of his ground. If the Striker be out of his

ground while the ball is in play, that wicket which he has left may be put down and the Striker given out, although the other batsman may have made good the ground at that end, and the Striker and his Substitute at the other end.

40. A Batsman is liable to be out for any infringement of the Laws by his Substitute.

41. The Fieldsman may stop the ball with any part of his person, but if he wilfully stop it otherwise, the ball shall be "Dead," and five runs added to the score; whatever runs may have been made, five only shall be added.

42. The Wicket-keeper shall stand behind the wicket. If he shall take the ball for the purpose of stumping, before it has passed the wicket, or, if he shall incommode the Striker by any noise, or motion, or if any part of his person be over or before the wicket, the Striker shall not be out, excepting under Laws 26, 27, 28, 29 and 30.

43. The Umpires are the sole judges of fair or unfair play, of the fitness of the ground, the weather, and the light for play; all disputes shall be determined by them, and if they disagree the actual state of things shall continue.

(See "Umpires," page 83.)

44. They shall pitch fair wickets, arrange boundaries where necessary, and the allowance to be made for them, and change ends after each side has had one innings.

45. They shall allow two minutes for each Striker to come in, and ten minutes between each innings. When they shall call "Play," the side refusing to play shall lose the match.

46. They shall not order a Batsmen out unless appealed to by the other side.

N.B.—An appeal, "How's that?" covers all ways of being out (within the jurisdiction of the Umpire appealed to), unless a specific way of getting out is stated by the person asking.

47. The Umpire at the Bowler's wicket shall be appealed

to before the other Umpire in all cases, except in those of stumping, hit wicket, run out at the Striker's wicket, or arising out of Law 42; but in any case in which an Umpire is unable to give a decision, he shall appeal to the other Umpire, whose decision shall be final.

48. If either Umpire be not satisfied of the absolute fairness of the delivery of any ball, he shall call "No Ball."

48a. The Umpire shall take especial care to call "No Ball" instantly upon delivery; "Wide Ball" as soon as it shall have passed the Striker.

49. If either batsman run a short run, the Umpire shall call "One Short," and the run shall not be scored.

(See Paragraph 3 under "The Batsman," page 81.)

50. After the Umpire has called "Over," the ball is "Dead," but an appeal may be made as to whether either batsman is out; such appeal, however, shall not be made after the delivery of the next ball nor after any cessation of play.

51. No Umpire shall be allowed to bet.

52. No Umpire shall be changed during a match unless with the consent of both sides, except in case of violation of Law 51; then either side may dismiss him.

53. The side which bats first and leads by 150 runs (in Australia 200 runs) in a match of three days or more, or by 100 runs in a two-days' match, shall have the option of requiring the other side to follow their innings.

54. The In-side may declare their innings at an end in a match of three days or more at any time on the second day; in a two-days' match the captain of the batting side has power to declare his innings at a close at any time; but such declaration may not be made on the first day later than one hour and forty minutes before the hour agreed on for drawing stumps; in a one-day match at any time.

55. Where there is no play on the first day of a three-day match, Laws 53 and 54 shall apply as if the match were a

two-day match, and if in a three-day match there is no play on the first two days, Law 54 and Law 1 "one-day matches" shall apply as if the match were a one-day match. Where there is no play on the first day of a two-day match, Law 54 and Law 1 "one-day matches" shall apply as if the match were a one-day match.

ONE-DAY MATCHES

1. The side which bats first and leads by 75 runs shall have the option of requiring the other side to follow their innings.

2. The match, unless played out, shall be decided by the First Innings. Prior to the commencement of a match, it may be agreed: That the over consists of five or six balls.

If the Captains are unable to agree, the Umpires should decide if there is sufficient time left to carry the game to a further issue after each side has completed an innings.

N.B.—A tie is included in the words "played out."

SINGLE WICKET

The Laws are, where they apply, the same as before, with the following alterations and additions.

1. One wicket shall be pitched, as in Law 6, with a bowling stump opposite to it at a distance of twenty-two yards. The bowling crease shall be in line with the bowling stump and drawn according to Law 7.

2. When there shall be less than five players on a side, bounds shall be placed twenty-two yards each in a line from the "Off" and "Leg" stump.

3. The ball must be hit before the bounds to entitle the Striker to run, which run cannot be obtained unless he touch the bowling stump or crease in a line with his bat, or some part of his person, or go beyond them, and return to the Popping Crease.

4. When the Striker shall hit the ball, one of his feet must be on the ground behind the Popping Crease, otherwise the Umpire shall call "No Hit," and no runs shall be scored.

5. When there shall be less than five players on a side, neither "Byes," "Leg Byes," nor "Over-throws" shall be allowed, nor shall the Striker be "Caught Out" behind the wicket nor stumped.

6. The Fieldsman must return the ball so that it shall cross the ground between the wicket and the bowling stump, or between the bowling stump and the bounds; the Striker may run till the ball be so returned.

7. After the Striker shall have made one run, if he start again he must touch the bowling stump or crease, and turn before the ball cross the ground to entitle him to another.

8. The Striker shall be entitled to three runs for lost ball, and the same number for ball wilfully stopped by a fieldsman, otherwise than with any part of his person.

9. When there shall be more than four players on a side there shall be no bounds. All "Hits," "Byes," "Leg Byes," and "Over-throws" shall then be allowed.

10. There shall be no restriction as to the ball being bowled in overs, but no more than one minute shall be allowed between each ball.

THE BATSMAN

When a Batsman has retired owing to illness, injury or some other unavoidable cause, his innings must be counted as "Not Out."

A side which has fielded with ten men, or less, may bat with its full strength provided no disqualification rule applies.

When a short run is called it is not customary for the Batsmen to cross over to the positions they would have been in if the run had not been attempted.

THE BOWLERS

There is no objection to the Bowlers' footholes being filled up with sawdust, though the game be not actually in progress.

(See "Umpires," page 83.)

It sometimes happens that the Bowler will lift the seam of the ball in order to obtain a better hold. This is not legitimate. The ball, in such a case, should be shown to the Umpire, who should call for another ball and warn the Captain that the practice is unfair. The use of resin by bowlers is also unfair.

A Bowler can bowl round and over the wicket in the same over; but he should give the batsman an opportunity of taking a fresh guard. The same remarks apply to a change from over- to under-arm bowling, or *vice versa*.

THE BOUNDARY

When a Batsman has actually made more runs for a boundary hit than have been arranged for the boundary, Law 2 will prevail and the runs completed should be scored.

If a ball hit or pass over or through the boundary, or is carried over it by the Fieldsman, the Umpire should call a boundary hit, but a Fieldsman may lean against the boundary to catch or field a ball, and if a Fieldsman, when standing within the playing ground, even though he be touching the boundary, catch a ball outside the boundary, the Batsman shall be given out.

When the ball touches the boundary it becomes "Dead."

The Umpire is not a boundary.

It is for the Umpire to decide if a hit has reached the boundary.

If a seat or other obstacle is placed in the playing ground, within boundaries, and such obstacle is struck by the ball,

it cannot be regarded as a boundary unless so arranged by the Umpires.

When four runs are allowed for a boundary, it is the practice for Umpires to allow six runs for all hits that drop over and clear of the boundary line or fence, even though the ball has been touched by a Fieldsman in an attempt to make a catch.

The runs which have been arranged for a boundary hit are to be added to the runs already made, should a Fieldsman wilfully cause the ball to reach the boundary.

UMPIRES

An Umpire should stand where he can clearly see the act upon which his decision may be required.

An Umpire wishing to stand on the off side of the wicket instead of the leg side should ask the permission of the Captain of the fielding side.

Umpires should not call "Time" before the over is finished. (See Law 45.)

The Umpires should agree between themselves, before play, what watch or clock they shall follow in deciding intervals and close of play.

Save as provided by the Laws, the Umpires have no right to interfere in the progress of the game, except on appeal.

As to finishing an over, see Notes to Law 13.

At the end of an over the Umpire at the bowler's wicket should distinctly call "over" before leaving the wicket.

The responsibility of supervising the rolling of the pitch before play will, in the first place, rest with the Umpires.

Umpires are not *obliged* to stand near the wicket in order to supervise the rolling.

The ground may be rolled for seven minutes immediately before a match begins, but the roller must be off the ground so as to allow play to commence at the stipulated time.

It is not the Scorers' business to dictate to the Umpire. The Umpire should direct the Scorers what to record.

At the commencement of a match the Umpires may be appealed to by either side as to the fitness of the ground for play.

Should they not agree, play will not commence until they are agreed.

Umpires are not justified in deciding the ground unfit for play merely because the grass is wet and the ball would, in consequence, be slippery.

In order to facilitate play at the earliest possible moment in wet weather, the Umpires shall see that the foot-holes made by the Bowlers and Batsmen are cleaned out, dried and filled up with sawdust at any time during the match, although the game is not actually in progress.

In case of interruption from rain, as soon as the rain has ceased the Umpires shall immediately, without further instruction, inspect the wicket, unaccompanied by any of the players, and decide upon its fitness. Should it prove unfit, they shall continue to inspect at intervals until they decide that it is fit for play, when they shall call upon the players to resume the game.

The ground is unfit for play when water stands on the surface, or when it is so wet, muddy or slippery as to deprive the Bowlers of a reasonable foothold, or the Fieldsmen of the power of free movement.

The Umpires are not to be biased by the opinions of either side, still less are they to allow themselves to be influenced by the impatience of the spectators for a resumption of the game, and are not to be induced, by the public interest in a particular match, to declare the ground fit for play unless they would consider the ground fit under any circumstances.

The Umpires may decide, on appeal from the Captains, should the latter disagree, that there is not sufficient light

for play. Should the light improve before the time for drawing stumps, they shall, without waiting for instructions, call upon the players to resume the game.

In the event of the Captains agreeing as to the condition of the ground or light, the Umpires will so far be relieved of their responsibility.

An Umpire is only justified in appealing to the other Umpire when he is unable to decide, owing to his having been prevented from seeing the occurrence on which the appeal is based. He is not to appeal to the other Umpire in cases on which he could give a decision, merely because he is unwilling to give that decision. If he be in any doubt, the principle laid down in Law 43, "That the existing state of things shall continue," shall be followed and, in consequence, the decision should be in favour of the batsman.

An Umpire may alter his decision if, in the hurry of the moment or by a slip of the tongue, he has given a wrong one; provided that such alteration is made promptly.

On giving a decision, the Umpire should make sure that the batsman understands what the decision is.

The special attention of Umpires is called to Law 48, which directs them to call "No Ball" unless absolutely satisfied of the fairness of the delivery.

Umpires should not allow themselves to be unduly influenced by appeals from such of the field who were not in a position to form a judgment on the point appealed upon, or by tricks—such as throwing up the ball on appealing for a catch at the wicket, without waiting for the decision. Umpires, being the sole judges of fair or unfair play, should remember that such devices are obviously unfair, and are not in accordance with the spirit in which cricket should be played.

It is the duty of Umpires appointed by the Captains of the first and second-class Counties to report to the Secretary, M.C.C., any case, on or off the field, of a player

criticizing or showing resentment to the decision of an Umpire. The Umpires are, however, required to give notice to the Captains during the match that it is their intention to make a report.

Umpires should see that there is no infringement of Law 5. When in doubt as to the width of a bat they should use the gauge.

All Umpires shall report themselves to the Manager of the ground one hour before the commencement of each day's play and they shall make a point of seeing that the wickets, bats and balls are in accordance with the Laws of the game, and they must remember that the conduct of the game and the state of the ground is within their jurisdiction.

The interval for luncheon shall be 40 minutes. In the event of the last wicket falling within two minutes of the time arranged for luncheon, the game shall be resumed at the usual hour, no allowance being made for the ten minutes between the innings.

After 200 runs have been made with a ball in the County Competition, the fielding side can demand a new one.

Umpires should inform the batsmen when a new ball is about to be used.

All cricket balls used in County Cricket matches should be submitted to and approved by the Captains of the competing sides before the matches begin.

Trial balls, if both batsmen are at the wickets, shall not be allowed in first-class matches.

Boundaries shall be signalled by waving the hand from side to side.

A boundary six shall be signalled by raising both arms above the head.

Byes shall be signalled by raising the open hand above the head.

Leg byes shall be signalled by raising the leg and touching it with the hand.

Wides shall be signalled by extending both arms horizontally.

No-balls shall be signalled by extending one arm horizontally.

The decision "Out" shall be signalled by raising the index finger above the head.

"One Short" shall be signalled by bending the arm upwards and by touching the top of the nearest shoulder with the tips of the fingers of one hand.

Umpires should wait until a signal has been answered by the Scorer before allowing the game to proceed.

Besides signalling, the Umpire should "call" distinctly for the information of the players.

A.A.A. COMPETITION RULES

(The numbers of each paragraph are those of the Amateur Athletic Association Handbook.)

N.B.—These Rules are quoted for guidance. The Army Athletic Championships are not Open Competitions, and the Committee may make such additional or amending conditions as they consider necessary.

CLOTHING

57. A tight-fitting vest and loose knickers must be worn. The vest may be sleeveless. In any event in which a water jump is included the knickers must be dark in colour. Any competitor will be excluded from taking part in an event unless properly attired.

58. Spiked shoes may be worn in Steeplechases comprising hurdles and water jumps only, but shall not be allowed in Obstacle Races.

STATIONS

60. In handicap sprint races stations at the start shall be assigned to the competition according to the order of their

handicap starts, the competitor with the shortest start taking the station on the left facing the winning post, the competitor with the next shortest start the second station, and so on.

61. In level races competitors shall draw for their respective stations at the start. In straight sprint races the competitor drawing No. 1 shall take the station on the left facing the winning post, the competitor drawing No. 2 the next station, and so on. In races on a circular track, the competitor drawing No. 1 shall take the station nearest the centre of the ground, the competitor drawing No. 2 the next station, and so on.

THE START

62. All races (except time handicaps) shall be started by the report of a pistol, and a start shall only be made to the actual report. It is recommended that the Starter shall fire in the air after ascertaining that the Timekeepers are prepared. The time shall be taken from the flash of the pistol.

63. All questions concerning the start shall be in the absolute discretion of the Starter, whose decision shall be final. If, in his opinion, the start is not a fair one he shall recall the competitors.

64. The Starter shall place competitors on their respective marks in their respective stations, and shall for this purpose have the assistance of such marksmen as he may require.

65. (a) The use of starting blocks is forbidden.

(b) The Starter shall give competitors two warnings:

1. "Get to your marks," then, when competitors are ready—

2. "Set,"

and fire when all competitors are "set," i.e. steady on mark.

If any competitor is unsteady or, for any other reason, the Starter has to warn a competitor, he shall order all competitors to stand up and then repeat warnings 1 and 2.

66. No competitor shall touch the ground in front of his mark with any part of his body.

PENALTIES FOR GETTING OVER THE MARK

67. In handicap events, if after being placed on his mark, any competitor (including the scratch man) shall touch the ground in front of such mark with any part of his body before the pistol has been fired the Starter shall put him back one yard where the distance of the race does not exceed 220 yards; two yards where the distance exceeds 220 yards and does not exceed 440 yards; three yards where the distance exceeds 440 yards and does not exceed 880 yards. For a second offence in the same competition the Starter shall impose a further similar penalty, and for a third offence shall disqualify the competitor and exclude him from the race.

In level races any competitor touching the ground in front of his mark with any part of his body shall be cautioned and for a third offence shall be disqualified.

WINNERS OF PRELIMINARY HEATS

68. (a) In handicap sprint races run in strings or lanes with more than one round of preliminary heats, the winners only of the first round of the heats shall be entitled to take further part in the competition. Not more than six competitors shall take part in the final heat.

(b) In scratch races at least the first and second should qualify in the next round.

69. (a) The final round should not begin earlier than 30 minutes after the last heat of the previous round.

(b) Those qualified in trial heats must compete in suc-

ceeding rounds or finals unless the consent of the Judges to their abstention has been obtained, or they become liable to suspension.

THE RACE

70. Any competitor wilfully jostling or running across or obstructing another competitor so as to impede his progress shall forfeit his right to be in the competition, and shall not be awarded any position or prize to which he would otherwise have been entitled. No competitor shall cross in front of another until he is at least two yards in front of that competitor. In all races run in lanes each competitor shall keep in his allotted lane from start to finish.

71. No competitor shall be allowed to rejoin a race after leaving the track, either for the purpose of gaining a place or to pace or assist another competitor.

72. No attendant shall accompany any competitor on the mark or in the race, nor shall any competitor be allowed, without the permission of the Referee or Judges, to receive assistance or refreshment from anyone during the progress of a race. In no case may such permission be given in a race of 10 miles or less.

THE FINISH

73. The finishing point shall be a line drawn across the track at right angles to the inner edge.

Worsted shall be stretched over this line four feet from the ground and fastened to a post fixed at each side of the finishing line, for the express purpose only of assisting the Judges and Referee in placing the competitors.

The competitors shall be placed in the order in which any part of the body, i.e. "torso" (as distinguished from the head, arms, hands or feet) reaches such line.

In the event of a competitor falling, he shall not be

considered to have finished until his entire body (head, arms and feet included) has crossed the line.

FIELD EVENTS

GENERAL RULES

79. Competitors shall take their trials in the order in which their names are printed on the programme, unless the Judges decide to alter that order. A competitor cannot hold over any of his trials to a subsequent round.

TIES

80. Should two or more competitors tie, their order shall be decided as follows:

(a) In jumping for height:

- (1) The competitor with the lowest number of jumps at the height at which the tie occurred is the winner.

If the tie still remains:

- (2) The competitor with the lowest total of failures throughout the competition is the winner.

If the tie still remains:

- (3) The competitor with the lowest total number of jumps (whether successful or not) throughout the competition is the winner.

If the tie still remains:

- (4) (a) If it concerns the first place the competitors tying shall have one more jump at the height at which they failed, and if no result be obtained the bar shall be lowered or raised, with one jump at each height, until the tie is decided, (b) if

it concerns any other place, the competitors shall be given the same place in the competition.

Example:

HIGH JUMP

	5' 6"	5' 8"	5' 9"	5' 10"	5' 11"	6' 0"	6' 1"	Total Failures	Total Jumps	Position
Jones	—	x✓	✓	x✓	—	xx✓	xxx	7	11	2
Smith	✓	✓	✓	x	x✓	xx✓	xxx	7	12	3
Brown	✓	✓	x	✓	xx✓	xx✓	xxx	8	13	4
Black	✓	—	—	xx✓	xx✓	x✓	xxx	8	12	1

Jones, Smith, Brown and Black all cleared 6 ft. 0 in. and failed at 6 ft. 1 in.

The new rule as regards ties comes into operation, and as Black cleared 6 ft. at his second attempt, the others taking three, he is declared the winner.

The other three still tie and the judge adds up the total number of failures. Brown has more failures than Jones or Smith, and is therefore awarded fourth place. Jones and Smith still tie, and the judge adds up the total number of jumps, Jones being awarded second place.

(b) In those field events where the result is determined by distance, two additional trials shall be allowed and the performances in these trials shall only decide the competition when the competitors exceed the distance at which they tied; otherwise the competition shall be declared a tie.

(c) In the case of a tie, the subsequent performances decide only the relative position of those who are competing to decide the tie.

HIGH JUMP

81. (a) Any style or kind of uprights or posts may be used. They should be at least 12 ft. apart, and shall not be moved during a competition, unless the Judges consider the take-off or landing ground has become unsuitable. A change may only be made after a round is completed.

The cross-bar shall be entirely of wood and of uniform thickness, and may be circular with square ends, provided it is uniform section throughout, the diameter not to exceed $1\frac{1}{4}$ in.

Each peg supporting the cross-bar shall be flat and square, $1\frac{1}{2}$ in. wide and extending to $2\frac{3}{8}$ in. from the uprights in the direction of the opposite upright. The end of the cross-bar shall be placed on the pegs so that there is a space of $\frac{3}{8}$ in. between the cross-bar and the uprights.

(b) The ground round the take-off must be level.

(c) Unless a particular height is specified on the prospectus or entry form, the Judges shall decide the height at which the competition shall start and the extent to which the bar shall be raised after each round, and shall inform the competitors of their decision.

(d) All measurements shall be made perpendicularly from the ground to the upper side of the cross-bar where it is lowest.

(e) A competitor may begin jumping at any height and may, at his own discretion jump at any subsequent height until he has failed three times in succession, when he forfeits his right to compete further. Dislodging the bar in the course of a jump or passing the plane of the uprights shall be counted as a trial.

(f) A competitor is entitled to continue jumping at successive heights even if all other competitors have failed and his best jump shall be recorded as the winning height.

N.B.—The effect of this rule is that a competitor may now forgo his second and third jumps at a particular height (after failing first time) and still jump at a subsequent height.

(g) Neither diving nor somersaulting over the bar shall be permitted.

(h) The competitor must take off from one foot.

(i) The employment of weights or grips of any kind is forbidden.

(j) A competitor may place a mark for his take-off and a handkerchief on the cross-bar for sighting purposes.

POLE VAULT

82. (a) The pegs supporting the cross-bar shall extend horizontally not more than 3 in. from the face of the uprights and shall be without notches or indentations of any kind. The pegs shall be round, of a uniform thickness throughout and not more than $\frac{1}{2}$ in. in diameter.

(b) A competitor may have the uprights moved at any time, but if they are moved, it must not be more than 2 ft. in any direction.

(c) The wooden box in which to plant the pole shall be 3 ft. 4 in. in length, 2 ft. in width at the front end, tapering to 6 in. in width at the stop board, where it shall be 8 in. in depth.

(d) As soon as a competitor has left the ground for the purpose of making a jump, the jump is counted as a trial. If the competitor makes a run without completing the jump it is not counted as a jump, but three such runs are counted as one jump.

(e) A competitor must not, in the moment that he makes a jump, or after leaving the ground, place his lower hand above the upper one or move the upper hand higher up on the pole.

(f) Dislodging the bar in the course of a vault or passing the plane of the uprights shall count as a trial. It should be considered a failure if the pole or competitor touches the ground beyond the plane of the uprights. No attendant is allowed to touch the pole unless it is falling away from the bar or uprights. If in making an attempt the competitor's pole is broken it shall not be counted as a jump.

(g) Competitors may use their own poles. No competitor

shall be allowed to use another's private pole except with the consent of the owner.

(h) The pole may be of any material and of any length or diameter. It may be wound or wrapped by adhesive tape. The wrapping must be of uniform thickness. The pole shall have no other assistance or device. The lower end of the pole may terminate in a single metal spike or wooden peg.

In other respects the rules for the High Jump apply.

LONG JUMP

83. (a) A take-off board shall be fixed in the ground, flush therewith. It should be made of wood not less than 4 ft. long, 8 in. wide, and 4 in. deep, and painted white.

(b) The ground in front of the take-off board must not be trenched or dug out, but should be sprinkled with soft earth or sand to the depth of $\frac{1}{2}$ in. to take an impression and so assist the Judges in deciding if a competitor has gone over the take-off line.

(c) The length of the run-up is unlimited.

(d) The pit should be at least 9 ft. wide and $29\frac{1}{2}$ ft. long.

(e) Each competitor is allowed three trials; the best three competitors at the end of the first round should be allowed three more trials. A promoting body may, however, decide a competition by the result of the first round; in such case it must be stated on the programme. Each competitor shall be credited with the best of all his trials.

(f) If any competitor touches the ground beyond the take-off board, or its front line extended, with any part of his body, such jump shall not be measured, but it shall be counted against the competitor as one jump.

(g) The measurement of the jumps shall be made at right angles from the front (i.e. the edge further from the run up) of the take-off board or scratch line to the nearest

break in the ground made by any part of the body of the competitor.

(h) The employment of weights or grips of any kind is forbidden.

HOP, STEP, AND JUMP

84. The competitor shall first land upon the foot with which he shall have taken off, the reverse foot shall be used for the second landing, and both feet shall be used for the third landing.

In all other respects the rules for the Long Jump shall apply.

STANDING JUMPS

85. The feet of the competitor may be placed in any position, but shall leave the ground only once in making an attempt to jump. When the feet are lifted from the ground twice, or two springs are made in making the attempt, it shall count as one trial jump without result. A competitor may rock forward and backward, lifting heels and toes alternately from the ground, but he may not lift either foot clear from the ground or slide it along in any direction on the ground.

With these exceptions the rules for the High Jump and Long Jump apply.

THROWING AND PUTTING FOR DISTANCE

GENERAL RULES

86. The circle or scratch line must be clearly marked on the ground by chalk, or otherwise, and all measurements made from the first mark in the ground made by the implement (in the hammer and javelin throw the head of the implement) to the inner edge of (a) the circle along a line drawn from the mark to the centre of the circle, or (b) at right angles to the scratch line or that line extended.

A steel tape should be used for measurement, and that part of the tape showing the feet and inches held by the official at the circle or scratch line.

A foul throw or letting go of the implement in an attempt shall be reckoned as a trial. If an implement break in a fair throw it is not reckoned as a trial.

87. Each competitor is allowed three trials; the best three competitors at the end of the first round should be allowed three more trials. A promoting body may, however, decide a competition by the result of the first round; in such case it must be stated on the programme. Each competitor shall be credited with the best of all his trials.

88. In all throwing events from a circle it shall be a foul throw if the competitor, after he has stepped into the circle and started to make the throw, touches with any part of his body or clothing or the implement the ground outside the circle or if he steps on the circle. The competitor must not leave the circle until the implement has touched the ground, and he shall then from a standing position leave the circle from the rear half, which shall be indicated by a chalk line extended outside the circle.

PUTTING THE WEIGHT

89. (a) The weight shall be put from the shoulder with one hand only, and it must never be brought behind the shoulder.

(b) The put shall be made from a circle 7 ft. interior diameter.

(c) In the middle of the circumference at the front half should be placed a stop-board 4 ft. long, 4 in. high and firmly fastened to the ground. In making his puts, the competitor may rest his feet against but not on top of the stop-board.

(d) A fair put shall be one in which no part of the person of the competitor touches the top of the stop-board, the

circle, or the ground outside the circle, until the weight has touched the ground.

(e) The weight shall be of iron or a brass shell filled with lead, and spherical in shape and shall weigh 16 lb.

THROWING THE HAMMER

90. (a) The hammer shall be thrown from a circle 7 ft. interior diameter.

(b) All throws to be valid throws must fall within a 90 degree sector marked on the ground.

(c) The competitor may adopt any position he chooses and use one or both hands.

(d) The head of the hammer shall be of lead or a brass shell filled with lead or cast grey iron and spherical in shape.

The handle shall be a single unbroken and straight length of spring steel wire not less than $\frac{1}{8}$ in. in diameter, or No. 36 piano wire, $\frac{1}{10}$ in. in diameter. The handle may be looped at one or both ends as a means of attachment.

The grip may be either of single or double loop construction, but must be rigid and without hingeing joints of any kind. A competitor can submit a single or a double loop different from the official grip, and, if legal, the Referee can allow the use of same. Any competitor may use such hammer.

The handle shall be connected to the head by means of a swivel, which may be either plain or ball bearing. The grip shall be connected to the handle by means of a loop. A swivel may not be used.

The weight shall be not less than 16 lb., and the length not more than 4 ft. complete as thrown.

THROWING THE DISCUS

91. (a) The discus shall be thrown from a circle 8 ft. $2\frac{1}{2}$ in. interior diameter.

(b) The discus shall be composed of a smooth metal rim, permanently attached to a wood body, brass plates set flush into the sides of the wood body and, in the exact centre of the discus, a means for securing the correct weight. The brass plates shall be circular in form, having a diameter of not less than 2 in. nor more than $2\frac{1}{4}$ in. Each side of the discus shall be a counterpart of the other side, and shall have no indentations, projecting points, or sharp edges. The sides shall taper in a straight line from the beginning of the curve of the rim to a line a distance of 1 in. from the centre of the discus.

The largest dimension shall be a circle not less than $8\frac{5}{8}$ in. in diameter. The thickness through the exact centre, on a line perpendicular to the diameter, shall be not less than $1\frac{3}{4}$ in. The thickness at 1 in. from the centre shall be exactly the same as at the centre. The thickness of the rim at a distance of $\frac{1}{4}$ in. from the edge shall be not less than $\frac{1}{2}$ in. The edge shall be rounded on a true circle.

The weight of the discus shall be not less than $4\frac{2}{5}$ lb., complete as thrown.

A metal discus complying with the official measurements, conditions, and weight may be used.

In other respects, the rules for Throwing the Hammer apply.

THROWING THE JAVELIN

92. (a) The javelin shall be thrown from behind a scratch line marked on the ground, at least 12 ft. in length.

(b) The javelin must be held at the grip.

(c) It is a foul throw if the point of the javelin does not touch the ground before any part of the shaft, or when the competitor crosses the scratch line or its extensions.

(d) The javelin shall be of wood with a sharp iron or steel point. It shall be constructed in such way that the space between the foremost point and the centre of

gravity is not longer than 3 ft. $7\frac{1}{2}$ in. or shorter than 2 ft. $11\frac{2}{5}$ in.

It shall have, about the centre of gravity, a grip formed of a binding $6\frac{3}{10}$ in. broad, of whipcord, without thongs or notches in the shaft, and shall have no other holding than the above-mentioned binding, whose circumference at either edge shall not exceed the circumference of the shaft by more than 1 in.

The length shall not be less than 8 ft. 6 in., the weight not less than 1 lb. $12\frac{1}{4}$ oz. complete as thrown.

RULES FOR PARTICULAR EVENTS

HURDLE RACES

94. A hurdle should consist of two wood uprights, or standards, supporting a rectangular wood frame or gate. The hurdle may be adjustable in height, but must be rigidly fastened at the required height for each event. The width of the hurdle must be not less than 4 ft.

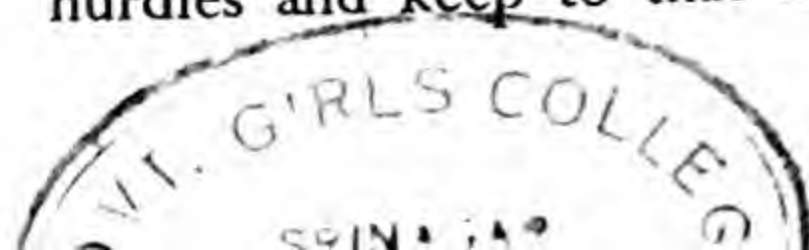
95. (a) Hurdle races should be over ten flights of hurdles.

(b) A competitor trailing his leg or foot alongside any hurdle shall be disqualified.

(c) Where the International type of hurdle is not used a competitor knocking down three or more hurdles or any part of three or more hurdles shall be disqualified.

(d) Where the International hurdle as described below is used, knocking down any number of hurdles shall not disqualify, nor shall it disentitle a competitor from claiming a record.

(e) In the 120 Yards Hurdles, each competitor must have his own line of hurdles and keep to that line throughout. If possible every competitor in the 220 yards, 300 yards, and 440 yards hurdle races should have his own line of hurdles and keep to that line throughout. Each track of



hurdles shall be measured the correct and full distance to the winning post.

120 YARDS

The hurdle should be 3 ft. 6 in. in height and have level top rails. The first flight of hurdles should be 15 yards from the scratch line and the hurdles should be 10 yards apart.

220 YARDS

The hurdles should be 2 ft. 6 in. in height. The first flight of hurdles should be 20 yards from the scratch line and the hurdles should be 20 yards apart. The distance from the last hurdle to the winning post should be 20 yards.

300 YARDS

The hurdles should be 3 ft. in height; the first flight of hurdles should be 45 yards from the scratch mark and the hurdles should be 25 yards apart. The distance from the last hurdle to the winning post should be 30 yards.

440 YARDS

The hurdles should be 3 ft. in height; the first flight of hurdles should be $49\frac{1}{4}$ yards from the scratch mark and the hurdles should be $38\frac{1}{4}$ yards apart. The distance from the last hurdle to the winning post should be $46\frac{1}{2}$ yards.

THE INTERNATIONAL TYPE OF HURDLE

The total weight of the hurdle shall be not less than 22 lb. $3\frac{1}{2}$ oz. The extreme width shall be 3 ft. 11 in. and the extreme length of the base shall be $27\frac{1}{2}$ in. The width of the top bar shall be $2\frac{3}{4}$ in. The top bar shall be striped in black and white. The hurdle shall be made of wood or metal and shall consist of two posts and two uprights supporting the rectangular frame reinforced by one or

more cross-bars, the uprights to be fixed at the extreme end of each base. The hurdle may be adjustable in height but should be rigidly fastened at the required height for each event. The hurdle shall be of such a design that a force of at least 8 lb. applied to the centre of the top of the cross-bar is required to over-turn it. Where an adjustable hurdle is used the force required to over-turn the hurdle when adjusted at its highest position (3 ft. 6 in.) shall be at least 8 lb. The hurdle shall be so placed on the track that the ends carrying the uprights shall be farthest from the starting line.

DECATHLON

97. The competition comprises the following events: 100 m. Flat, Running Long Jump, Putting the Shot, Running High Jump, and 400 m. Flat on the first day. Hurdle Race (110 m.), Throwing the Discus (best hand), Pole Vault, Throwing the Javelin (best hand) and 1,500 m. Flat on the following day. The events follow in the above-mentioned order. At the discretion of the promoters it is permissible, where circumstances make it desirable, to decide all the events on the same day and to vary the order.

Three trials only are allowed in the Long Jump and Throwing events.

In the 100 and 400 m. Flat Race and in the Hurdle Race three or four competitors start in each group. In the 1,500 m. Race, five or six shall start. The Referee shall have the right in case of necessity to make alterations.

The composition of the groups is decided by lot.

The time for each competitor shall be taken with three watches.

If false starts occur in the running competitions, the competitor will, after the second false start, be penalized by one-hundredth of the distance of the race for each false start.

After four false starts the competitor at fault shall be eliminated from the event in which the offence was committed.

Where the International type of hurdle is not used a competitor knocking down three or more hurdles shall score no points in that event.

The winner shall be the one who has obtained the highest number of points in the ten divisions, awarded on the basis of the new Scoring Table for field and track events adopted by the I.A.A.F. Congress in Stockholm, 1934.

RELAY RACES

98. Stations for teams shall be drawn for and each team retain its station throughout the race. Lines parallel to the side of the track shall be drawn to denote stations. A flag or baton must be carried and exchanged between lines drawn at right angles to the side of the track 10 yards on each side of the starting line. Failure to exchange between these lines entails disqualification.

When relay races run up to and including 440 yards are contested on a circular track, each team should, if possible, have a separate lane and each lane must be the full distance.

In sprint relay races, run up and down a track, the take-over is by touch, contact being made within a clearly defined area of one yard beyond, and at each end of the relay distance.

No competitor may run two sections of one race.

The composition of the team must not be changed after a trial heat has been run, but the members of the team may change their order of running.

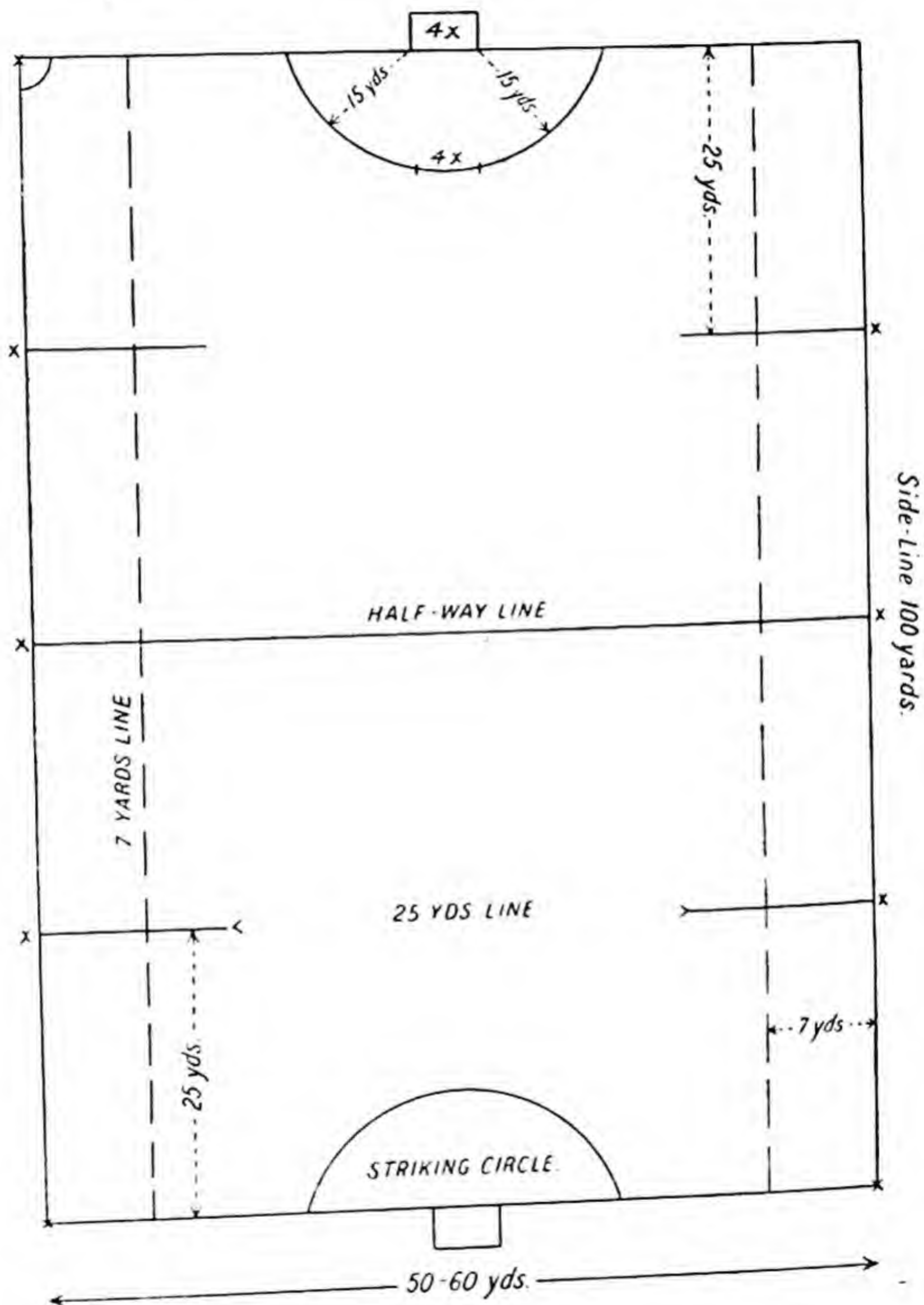
TEAM RACES

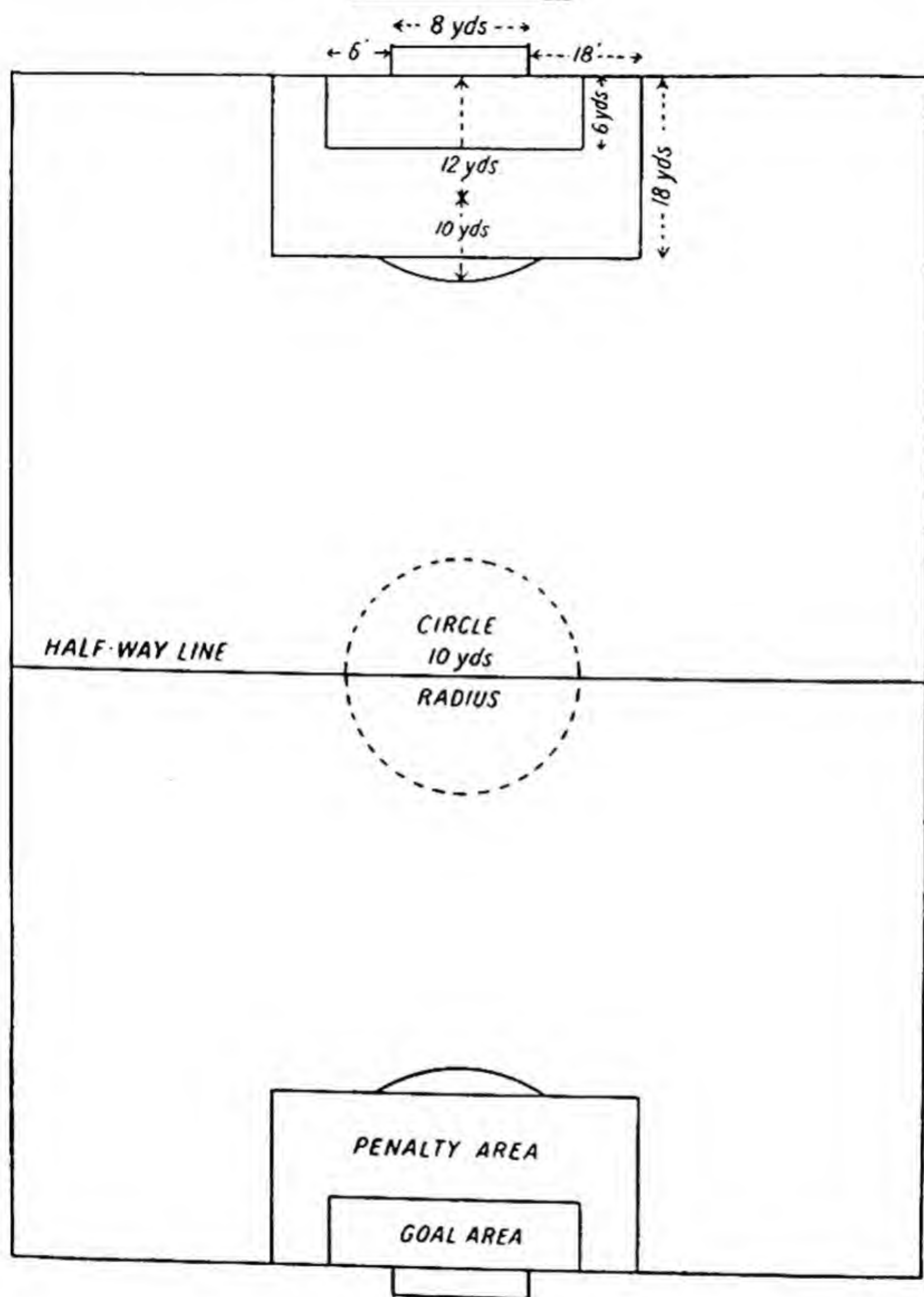
99. The composition of a team must not be changed after a trial heat has been run and only competitors finishing the full distance are eligible to compete in the final.

APPENDIX II

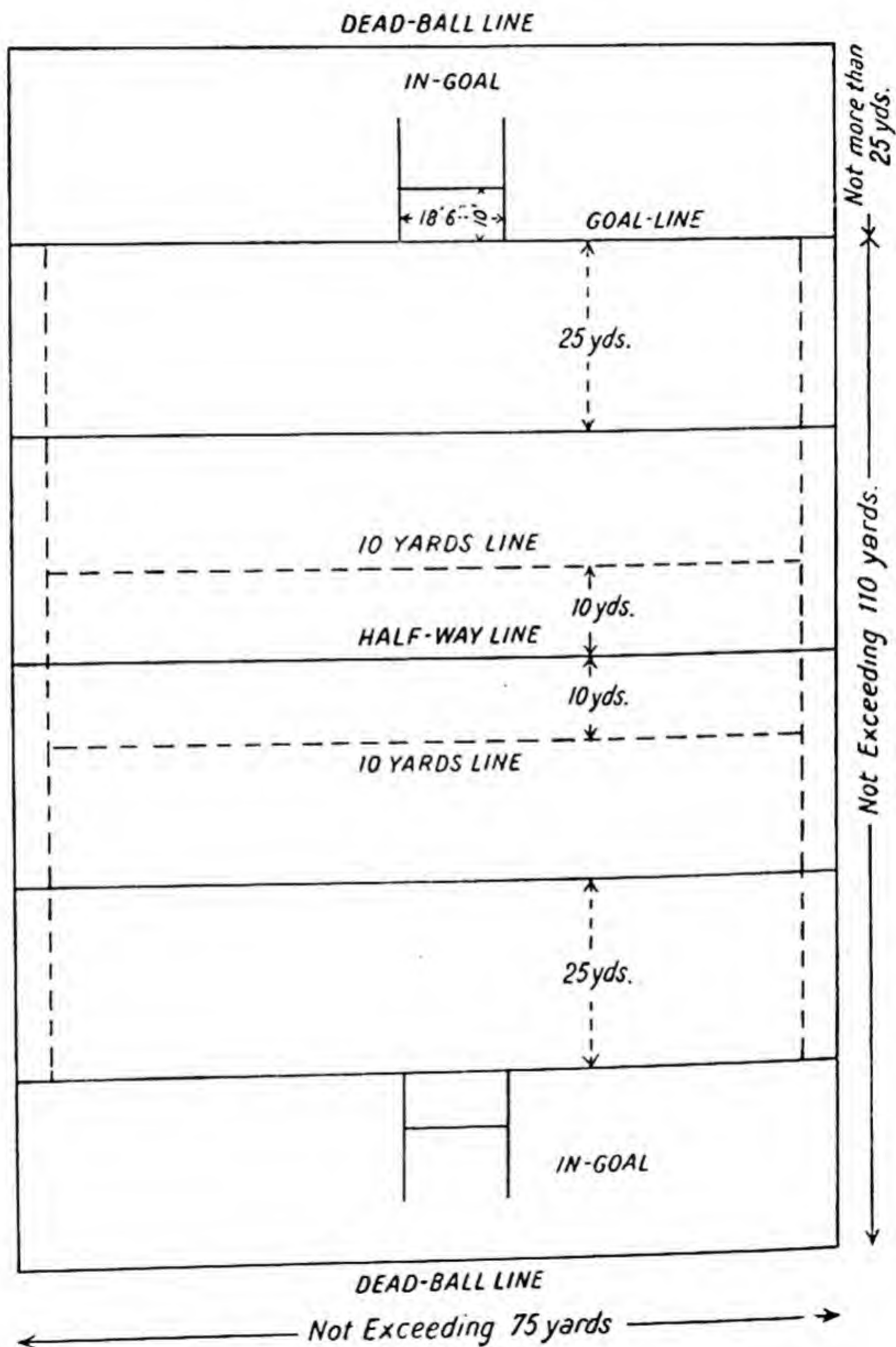
MEASUREMENTS OF FIELDS

<i>Cricket</i>	..	..	..	40 yd. × 40 yd. (minimum)
<i>Hockey</i>	..	..	..	90 yd. × 55 yd. (minimum)
<i>Football (Association)</i>	..	..	..	100 yd. × 70 yd. (minimum)
<i>Rugby</i>	..	..	..	100 yd. × 65 yd. (minimum)
<i>Minor games</i>	..	..	..	50 yd. × 50 yd. (minimum)
<i>Tennis</i>	..	..	..	116 ft. × 56 ft. (minimum)
<i>Badminton</i>	..	..	..	44 ft. × 20 ft. (minimum)
<i>Volley Ball</i>	..	..	..	60 ft. × 35 ft. (minimum)
<i>Post Ball</i>	..	..	..	100 ft. × 18 ft. (minimum)
<i>Basket Ball</i>	..	..	..	100 ft. × 15 ft. (minimum)

HOCKEY PITCH.

SOCCER PITCH.

Maximum Breadth 100 yds.
 Minimum Breadth 50 yds.

RUGBY FOOTBALL PITCH.

APPENDIX III

BIBLIOGRAPHY

1. PHYSICAL EDUCATION IN RELATION TO SCHOOL LIFE, by Roper (Allen & Unwin.)
2. A TEXTBOOK OF GYMNASTICS, by Knudsen. (Heinemann.)
3. EXERCISES FOR ATHLETICS, by Capt. F. A. M. Webster and J. E. Heys. (Shaw.)
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6. THE COMPLETE HOCKEY PLAYER, by White. (Methuen.)
7. CRICKET, by Woodfull. (Pitman.)
8. THE ART OF TENNIS, by Tilden. (Methuen.)
9. ASSOCIATION FOOTBALL, by Creek. (Dent.)
10. STARLINGS' PRINCIPLES OF HUMAN PHYSIOLOGY, by Lovatt and Evans. (Churchill.)
11. BASIC PHYSICAL TRAINING, by Margaret Morris. (Heinemann.)
12. PHYSICAL TRAINING GAMES AND ATHLETICS IN SCHOOLS, by M. B. Davies. (Allen & Unwin.)
13. VAULTING AND AGILITY, by Stanley Wilson. (Allen & Unwin.)
14. A NEW APPROACH TO ATHLETICS, by Stanley Wilson. (Allen & Unwin.)
15. RUGBY FOOTBALL, by D. R. Gent. (Allen & Unwin.)
16. HOCKEY, by S. H. Shoveller. (Allen & Unwin.)
17. ATHLETICS, by F. A. M. Webster. (Allen & Unwin.)

APPENDIX IV

WORLD RECORDS IN ATHLETICS

Run, Long Jump	St. Louis, 1904 Prinstein, U.S.A. 24 ft. 1 in.	London, 1908 Irons, U.S.A. 24 ft. 6½ in.	Stockholm, 1912 Gutterson, U.S.A. 24 ft. 11½ in.	Antwerp, 1920 Pettersen, Sweden 23 ft. 5⅞ in.
Run, High Jump	Jones, U.S.A. 5 ft. 11 in.	Porter, U.S.A. 6 ft. 3 in.	Richards, U.S.A. 6 ft. 4 in.	Landon, U.S.A. 6 ft. 4¼ in.
Hop, Step, Jump	Prinstein, U.S.A. 47 ft.	Ahearne, U.K. 48 ft. 11¼ in.	Lindblom, Sweden 48 ft. 5½ in.	Tuulos, Finland 47 ft. 7¼ in.
Pole ..	Dvorak, U.S.A. 11 ft. 6 in.	Gilbert-Cook, U.S.A. 12 ft. 2 in.	Babcock, U.S.A. 12 ft. 11½ in.	Foss, U.S.A. 13 ft. 5⅞ in.
Hammer ..	Flanagan, U.S.A. 168 ft. 1 in.	Flanagan, U.S.A. 170 ft. 4¼ in.	McGrath, U.S.A. 179 ft. 7½ in.	Ryan, U.S.A. 173 ft. 5¾ in.
Putt ..	Rose, U.S.A. 48 ft. 7 in.	Rose, U.S.A. 46 ft. 7½ in.	Macdonald, U.S.A. 50 ft. 4¼ in.	Porhola, Finland 48 ft. 7⅞ in.
100 Metres ..	Hahn, U.S.A. 11 sec.	Walker, South Africa 10⅞ sec.	Craig, U.S.A. 10⅞ sec.	Paddock, U.S.A. 10⅞ sec.
200 Metres ..	Hahn, U.S.A. 21⅞ sec.	Kerr, Canada 22⅞ sec.	Craig, U.S.A. 21⅞ sec.	Woodring, U.S.A. 22 sec.

400 Metres	..	Hillman, U.S.A. 49 $\frac{1}{8}$ sec.	Halswelle, U.K. w.o. 50 sec.	Reidpath, U.S.A. 48 $\frac{1}{8}$ sec.	Rudd, South Africa 49 $\frac{3}{8}$ sec.
800 Metres	..	Lightbody, U.S.A. 1 min. 56 sec.	Sheppard, U.S.A. 1 min. 52 $\frac{1}{8}$ sec.	Meredith, U.S.A. 1 min. $\frac{9}{16}$ sec.	Hill, U.K. 1 min. 52 $\frac{3}{8}$ sec.
Run, Long Jump		<i>Paris, 1924</i> Hubbard, U.S.A. 24 ft. 6 in.	<i>Amsterdam, 1928</i> E. B. Ham, U.S.A. 25 ft. 2 $\frac{3}{4}$ in.	<i>Los Angeles, 1932</i> E. Gordon, U.S.A. 25 ft. 0 $\frac{3}{4}$ in.	<i>Berlin, 1936</i> Jesse Owens, U.S.A. 26 ft. 5 $\frac{3}{16}$ in.
Run, High Jump		Osborne, U.S.A. 6 ft. 5·95 in.	R. King, U.S.A. 6 ft. 4 $\frac{3}{8}$ in.	D. McNaughton, Canada 6 ft. 5 $\frac{9}{16}$ in.	C. Johnson, U.S.A. 6 ft. 8 in.
Hop, Step, Jump		Winter, Australia 50 ft. 11·42 in.	Mikio Oda, Japan 49 ft. 11 in.	C. Nambu, Japan 51 ft. 6 $\frac{3}{4}$ in.	N. Tajima, Japan 52 ft. 5 $\frac{3}{4}$ in.
Pole	..	Barnes, U.S.A. 12 ft. 11·51 in.	S. W. Carr, U.S.A. 13 ft. 9 $\frac{1}{2}$ in.	W. Miller, U.S.A. 14 ft. 1 $\frac{7}{8}$ in.	E. Meadows, U.S.A. 14 ft. 3 $\frac{1}{2}$ in.
Hammer	..	Tootell, U.S.A. 174 ft. 10·22 in.	P. O'Callaghan, Ireland 168 ft. 7 $\frac{1}{2}$ in.	P. O'Callaghan, Ireland 176 ft. 11 $\frac{1}{8}$ in.	W. Hein, Germany 185 ft. 4·9 in.
Putt	..	Houser, U.S.A. 49 ft. 2·36 in.	J. Kuck, U.S.A. 52 ft. 0 $\frac{1}{16}$ in.		



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